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THE SURGICAL CONSIDERATION OF CONGENITAL AND DEVELOPMENTAL DEFECTS LEADING TO OBSTINATE CONSTIPATION *

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To arrive properly at a basis for the study of constipation and tympanitis, with their coincident autointoxication, one must start well back of the condition of disability and investigate the various embryologic, anatomic, and physiologic factors which may ultimately promote the train of pathologic symptoms.

Probably no condition is more lightly viewed by physicians in general than constipation, possibly because it is so common, and possibly, also, because in many instances it is more or less easily set aside by laxatives. Unless, therefore, this symptom becomes so exaggerated as to suggest a possible obstruction, it is usually viewed with professional equanimity. There is a growing tendency to look on the various laboratories of the human body as the generating ground, not only of physiologic, but under abnormal conditions of various pathologic products, in one instance beneficent, in the other very deleterious to health. The thyroid has already taken its place as the emanating source of various toxic principles, likewise the adrenals, the tonsils, etc. From that vast group of individuals who are designated neurasthenics have been culled certain groups which may be traced to these sources. Of late years the gastro-intestinal tract has been found to be a prolific source of neurasthenic symptoms, and such radical enthusiasts as Metchnikoff would have us believe that the colon, because of these noxious emanations, is a worse than useless reservoir, and following this train of thought Arbuthnott Lane advises the extirpation of this organ in chronic constipation and claims brilliant results from the operation. Between all radical negative and positive viewpoints of a theoretical nature there is usually a happy midway position; to ignore the colon as a source of trouble would be heresy, for it is self-evident that fecal stasis is a source of serious autointoxication. On the other hand, as we better understand this question, the total excisions of the colon would appear too radical, for Cannon's work indicates beyond question that the large intestine has a very important function in the absorption of residual food products passed on from the small intestine. It is therefore not a temporary reservoir but a very important food receptacle from which much nutrition is abstracted.

* Chairman's address before the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* For reasons of space, the article is slightly abbreviated by the omission of some of the case reports. The complete article appears in the Transactions of the Section and in the author's reprints.

COMPARATIVE ANATOMY

There is no organ in the body with such diversity of morphology to suit variations in function in different species of animals as the intestinal tract. The stomach actively participates in the mixing and digestion of certain portions of foods; the small intestine, beginning with the duodenum, further elaborates the process, and from that point on not only digestion but active absorption is taking place. The physical life of the animal, bird or reptile, and the character of food which it ingests, appear to determine the morphology of the small and large intestine. Thus, as stated by Huntington, in such creatures as birds which make long flights, requiring not only sustained effort but incredible repetitions of dynamic explosions, the food must be rapidly absorbed, and there is no place for residual food from which slow abstraction of nutrition occurs. For instance, the canvasback duck has relatively a very long small intestine and a very short colon, almost of a cloacal type. On the contrary, the ostrich, which is slower of movement and feeds on a more bulky food, has a very long colon. The wide variation in animals is noted in such birds of prey as, for instance, the eagle; the length of the colon as compared with the small intestine is only 1 to 68 or 70, while in the cassowary, a species of ostrich, it is 1 to 6, or practically more than ten times as long. In animals which have long resting periods with only occasional demands for great rapidity and sustained effort, the colon is usually very capacious, in some species becoming an enormous reservoir.

As the result of his splendid research in the comparative physiology of the large intestine, Huntington[1] says:

> While digestion of food substances will not be inaugurated in the large intestine, material already in the process of digestion and mixed with the intestinal juices of the preceding segment will be further elaborated in this portion of the canal and the nutritive products absorbed. This is especially the case in herbivora and omnivora, whose food is bulky, containing a large amount of refuse material and is hence only slowly digested. On the other hand the food of the carnivora is easily and rapidly digested and absorbed. After passing through the small intestine hardly any substances remain which are capable of digestion and absorption. Hence the large intestine of herbivora and omnivora is usually longer in proportion to the small intestine than it is in carnivorous animals. In the former this segment of the canal functions as an accessory digestive apparatus and hence often develop accessory structural modifications, such as a large cecum and spiral colon, while in the latter it acts almost solely as a canal for the evacuation of the indigestible remnants. Again, the large intestine is better developed in the higher animals, in mammalia and to a lesser degree in birds, in whom the functional demands for nutrition are active and require that a relatively large amount of food should pass through the digestive tract in a given time.

1. Anatomy of Peritoneum and Abdomen, p. 198.

Man occupies a midway position in colonic development. The human race is omnivorous, taking all classes of food. A good absorbing surface as represented by the 17 to 18 feet of small intestine is necessary, and at the same time a capacious colon for the retention of residual food products is likewise essential.

From this brief review of the comparative anatomy of the large bowel it is evident that in either the lower or higher animals it is not a useless, although it may be a dispensable, organ.

PHYSIOLOGY OF THE LARGE AND SMALL INTESTINE

The general principle of alimentary digestion may be defined as consisting of three phases; first, mixture of food with the digestive juices; second, the exposure of food to the absorbing mucous membrane, and, third, the propulsion of the food through the alimentary canal. The first takes place in the stomach and duodenum; the second in the small and a part of the large intestine. The rate of propulsion and fluid state of the food largely determine the amount of absorption. Food in transit from the stomach to the anus usually requires 24 to 36 hours, only 6 to 8 of which are occupied by the small, and the remainder by the large intestine.

As a broad proposition, therefore, one may say that the mechanical causes of constipation exist in the large and not in the small intestine. In the small bowel the food is fluid, and therefore is easily propelled along this 18 feet of flexible tubing. When, however, it reaches the large intestine in a mushy or semi-fluid state, slower inspissation takes place through the assimilation of the last remains of the nutritious portion of the food. This process must necessarily be slower, for the minimum part of the nutriment with a maximum of residue is emptied from the ileum into the cecum.

Cannon has shown in his splendid series of investigations on the physiology of digestion that the small intestine is much more actively engaged in the segregation or segmentation of food than in its mere propulsion from one end to the other. He has shown that there are two types of motility, one given over to the segmentation of food in short blocks in the small intestine, thus giving sufficient time for thorough digestion as well as absorption. During this process the mucous membrane, with its large absorbing valvulæ conniventes, is thrust into the food mass thus exposing its maximum surface to absorption. The second movement is peristaltic, slowly carrying the food from one block to another downward toward the cecum.

From this brief reference to intestinal digestion it is evident that the small bowel plays very little if any part in mechanical constipation. That the diminution or absence of certain intestinal juices in the food may lead to constipation of a more or less functional character is unquestioned, but this does not as a rule account for the progressive constipation, starting in infancy or adolescence and terminating in symptoms closely related to or actually terminating in partial obstruction. It is to this class of cases that we are giving our attention, and it is this type which is largely ascribable to mechanical faults of congenital and developmental character.

EMBRYOLOGIC CONSIDERATIONS

To understand properly the progressive constipation of adults we must recur to the development of the intestinal tract. We cannot study this complicated mechanical process without arriving at the conclusion that here lies the chief cause of the defects or, as very clearly summarized by my associate, Dr. Floyd Keene, "The potential factors are present in early life and later become active as the result of habit, physiologic sluggishness or mechanical defects, especially developing in women from defective child-bearing process."

The gastrointestinal canal consists * primarily of a straight tube closely attached to the primitive posterior abdominal wall. Very early a portion of the upper segment shows a bulging posteriorly and a concavity anteriorly, corresponding to the greater and lesser curvatures, respectively, of the stomach. As the result of the increasing volume of the liver and increased length of the stomach segment there is a rotation to the right, so that what was originally the left side has become the anterior surface and the right side the posterior surface of the fully developed stomach. At first there is no line of demarcation between the stomach and duodenum. According to Tandler there is a great increase in the epithelium of the duodenum during the second month, so that the lumen may be greatly narrowed or even completely obliterated. This probably explains some cases of congenital stenosis. During the third month the lumen is restored by an increase in the diameter of the gut.

Early in fetal life the size of the liver is out of all proportion to that of the abdominal cavity. Consequently the rapidly increasing length of the intestine demands more room for its development. In order to find space it passes out of the abdominal cavity through the wide open umbilicus, where it continues to remain for some time. As the result of this migration an anteroposterior U loop is formed, consisting of a proximal descending and a distal ascending limb. During this process the mesentery has naturally become lengthened, and even at an early age shows the blood vessels found in adult life. The superior mesenteric artery courses between the limbs of the U loop; the inferior mesenteric supplies the posterior and lower segments.

As the limbs of the extra-abdominal loops increase in length they approach one another, and later an axial rotation of the loops takes place so that the lower limb passes over the upper. It is from this lower or distal limb that the colon develops; hence, this explains why the upper portion of the small intestine lies beneath the superior mesenteric artery. While both limbs increase in length, this takes place far more rapidly in that portion which is to become the small intestine, viz., the original upper limb. Mall has demonstrated that, while the intestine lies extra-abdominally, the small gut arranges itself into six primary coils which in their further growth become more complex but nevertheless can be definitely outlined in the adult.

As the result of the axial rotation referred to, the small intestine assumes a position below and to the left of the large intestine, which is now inverted U shape, and extends antero-posterior to the midline of the posterior abdominal wall. Later there is a rapid increase in the size of the abdominal cavity which permits the intestines to reenter. According to Mall the upper portion of the small intestine first assumes its position in the left hypochondriac region, to be followed by the remainder of the small intestine and colon, the cecum returning last. The coils which were primarily arranged vertically now assume a transverse position.

In early fetal life the cecum develops as a small bud at the beginning of the ascending limb. The appendix at first comes from its tip, like the handle of a funnel, but as the result of unequal growth of the anterior and right

* Summarized from Peirsol's "Anatomy" and Quain's "Embryology"

walls the appendix is thrown posteriorly and to the left. On reentering the abdomen the colon retains its inverted U shape, but the upper limb of the U is pushed transversely by the underlying small intestines below and the liver and stomach above, the cecum lying beneath the liver. The colon continues to grow after birth, and with this growth there is a migration of the cecum downward into the right iliac fossa, with the formation of the ascending colon. This does not take place completely until some time after birth. At birth the sigmoid forms a large portion of the colon (one-half, according to Piersol) and is an intra-abdominal organ, and the adult proportions do not exist until the third year of life.

As the result of peritoneal fusion the ascending and descending colons are deprived of a distinct mesentery.

GENESIS OF ENTEROPTOSIS AND CHRONIC CONSTIPATION

As the result of Dr. Keene's finding in autopsies on babies ample evidence in favor of the congenital origin of enteroptosis is discovered. Theoretically the sequence of events is as follows: During youth and early adult life the intra-abdominal pressure is perfectly maintained by the tonicity of the abdominal musculature. A potential or latent enteroptosis may be present, but is not symptomatic because the redundant colon is held in such a position that the lumen is not interfered with. That such a redundancy exists has been shown in several autopsies on babies where, for example, in several instances the transverse colon was plicated on itself in order to find sufficient room for its development. It might be thought that the increase in size of the abdominal cavity would permit of an unfolding and straightening of the intestines, but this is not probable because the increase in size is not sufficient, since these colons are sometimes enormous when compared with the general development of other organs, and, secondly, the colon continues to increase in length after birth. The theory that the transverse colon will be straightened in the further developmental cycle by the descensus of the cecum and formation of ascending colon is not tenable, for in several of our observations redundant transverse colon was coincident with complete descensus of cecum.

Given such a case, an actual symptomatic enteroptosis replaces the potential or latent enteroptosis when one or more of the following factors come into play: As the result of childbirth or wasting disease the tonicity of the abdominal musculature is replaced by a hypotonicity, with consequent diminution of the intra-abdominal pressure, permitting a sagging of the intestine with the formation of kinks at the junction of the movable and fixed portions. While faulty posture, as pointed out by Goldthwaite, may have the same effect, in addition to the removal of the normal buttresses of the abdominal organs, as cited by Martin, we are inclined to the view that posture and the characteristic body form of some of these individuals may be the direct result of faulty nutrition in infancy and childhood, and are therefore a resultant and not a cause of the enteroptosis. Congenital and acquired adhesions and kinking must also play a part. Fecal stasis should be looked on, not as the cause of these conditions, but as the result of them. No doubt the presence of a large fecal mass more or less constantly exercising its weight may exaggerate the disability.

Dr. Keene's autopsies have verified Treves' observations that the sigmoid at, and even several months after birth, forms a large part of the colon.

From this reference to the embryology with the autopsy findings in Dr. Keene's series of infants it is evident that from the very beginning abnormalities of formation and position of the large intestine may exist with coincident colonic sluggishness which early leads to constipation. It is interesting to note in this connection that the majority of exaggerated enteroptoses, and particularly those of colonic type, that the history of constipation is traced back to childhood days. In the light of these embryologic deviations, which are so frequently noted, we are not surprised to find constipation such a prevalent complaint in infancy and childhood.

Thus Coolidge[2] says:

> Relatively more patients are brought to us for treatment of constipation than for any other one disease. Babies of all ages and conditions whether breast-fed of bottle-fed seem to suffer equally from this condition. In a large per cent. of the cases we find the cause of constipation in the infant due to improper food which is taken by the baby itself or else by the mother, if the child is breast-fed. A few cases have a decided weakness of the rectal muscles, making it impossible for the baby to expel the feces even though the food is well digested and suited to the individual child. Constipation due to defective portal circulation and lack of bile secretion is one of the most difficult forms to treat in young infants; frequently this cannot be entirely overcome until the child is old enough to take solid food and systematic exercises.

Constipation, therefore, in infancy is a besetting symptom; its explanation, while largely theoretical, harks back to anatomical as well as functional defects. One may be relieved with careful medical and hygienic regulations; the other is not so easily overcome, as this persistent symptom in adults demonstrates.

Until the advent of the *x*-ray as a diagnostic agent in enteroptosis clinicians had made little progress over the original discovery of Glénard, for there was no accurate method of determining the organ or group of organs chiefly participating in the visceral descensus. This failure to recognize these conditions probably accounts for the widespread adoption a few years ago of nephrorrhaphy, a procedure which captivated many gynecologists and general surgeons. Those careful observers who followed the after course of their cases soon realized that this operation was far from a cure-all, and, indeed, as frequently performed on the more palpable indications of undue mobility, ended in lamentable symptomatic failure. We soon realized that many of these patients were persistent neurasthenics, and for a cause, but the kidney was but one part of that cause and usually a very small part.

It is a classical fact that the neurasthenic individual is of all other cases the worst for surgical intervention unless there is a well defined indication for its adoption. The participation of a movable kidney in the presence of other prolapsed viscera is therefore of small account in the general abdominal symptoms noted by Glénard. Failure to cure these cases has caused our attention to be centered in a more analytical manner on symptoms emanating from other organs of this group. The use of the *x*-ray has done much in segregating the stomach in one class of cases as the dominant source of symptoms and the colon in another class, and we now believe far the greater of the two. Also the *x*-ray has helped in differentiating between cases of redundant sigmoid and the transverse colon of exaggerated length and displaced and angulated flexures.

While great assistance has come from the use of the *x*-ray in this anatomic isolation of gastrointestinal segments, we have also learned that it is not the court of

2. Bull. Lying-in Hospital, New York.

last resort in defining treatment. Clinical data and close observation of the symptomatology alone can do this. Exaggerated ptoses are not necessarily productive of profound symptoms. Time and time again we have observed cases with very deeply dependent transverse colons or with great redundancy of the sigmoid and moderately good or even perfect function maintained. Manifestly it would be a most injudicious procedure to disturb by a surgical operation such an intestine; on the other hand, a well defined history of increasing constipation extending back to babyhood, and at times approaching full obstruction, which has been uninfluenced by medical skill, should have surgical attention. I approach the discussion of the surgical treatment of these cases with trepidation, for I realize from my experience that unless most cautiously employed it will be hazardous, not so hazardous to the life of the patient as to the repute of surgery. On the other hand, experience also teaches that operative treatment holds happy possibilities if proper care is observed in the selection of cases.

I therefore preface my suggestions as to surgical intervention with this caution, for these patients are now in neutral ground between medicine and surgery. One class, much the larger, should remain within the medical domain, while the other must be transferred to the surgeon. An indiscriminate tendency to operation, however, will cast unjustifiable criticism on measures which may be most beneficial if properly selected. This is, I believe, the frontier line of surgery and should be developed by careful methods and by men of wide experience. It is not the field for a novice.

From our clinical study of these cases we now find greater possibilities of differentiating between those with dominant gastric symptoms or with major colonic symptoms. In many cases of exaggerated coloptosis the gastric function is normal because the stomach is little interfered with. On the other hand, in marked types of gastroptosis there may be no coloptosis.

This address has as its theme exaggerated constipation due to abnormalities of the colon, and I therefore pass over the question of gastroptosis.

ANATOMY OF THE COLON

One cannot take up this subject without harking back to Treves' classical lectures on "The Anatomy of the Intestinal Canal and Peritoneum."[3] This classical research not only lays down the groundwork of our present knowledge of the intestinal canal but forecasts in a few trenchant paragraphs the pathologic aspect of embryologic and developmental deviations.

In his consideration of the ascending, transverse, descending and sigmoidal portions of the colon, Treves centers many interesting observations on the individual portions. The mutual relations existing between the segments in the adult do not exist at birth, but only assume their morphologic associations some time after extrauterine life. Thus the hepatic flexure does not exist at birth and the cecum completes its descensus after this time. The colon, therefore, assumes in many instances a more or less oblique direction from the right iliac to the left splenic area without a hepatic flexure. Should the hepatic flexure lapse through faulty development, at once a weakened area in the colon develops, which may lead to ptosis of this portion of the gut. Such deviation, however, as we have frequently observed clinically does not necessarily lead to disabilities, for the colonic function under these conditions may be maintained unimpeded. The cecum may remain without descensus high in the right hypochondrium or even occupy a position under the liver. In other instances it may undergo exaggerated descensus, dropping well over the brim of the pelvis or even into Douglas' cul-de-sac. Unquestionably some exaggerated cases of the latter type not only give rise to chronic appendicitis but maintain cecal and ileac peristalsis with considerable pain, even after this organ is removed. A very flabby cecum falling into the pelvis may cause considerable disturbance in the discharge of alimentation from the ileum into the cecum. While these cases may be rare, we should not lose sight of this possibility, and in cases of exaggerated ceca they should be sutured back into the proper position. This procedure is both simple and safe and should not give untoward results. In a few cases in our own experience a happy relief has been afforded by this measure.

No portion of the colon is subjected to greater variations than the transverse; it is, indeed, so variable that we may even doubt whether there is a normal situation and length. Treves found that the transverse colon averaged about 20 inches in length, the shortest noted being 12 inches, the longest 33.

On drawing a thread transversely across the abdomen from the highest point of one iliac crest to the other he ascertained that in the majority of instances the inverted colic arch was above this line, while a fourth were below it.

One cannot note this observation without being irresistibly forced to the conclusion that this smaller percentage of cases cannot functionate properly, and that from this class a considerable number of defectives must be culled as typified by the neurasthenic of constipated habit. To draw the conclusion that Treves' thread defines a health zone above or a neurasthenic boundary below would be indeed a far cry, but we may not go false in our reasoning if we assume that some at least of these exaggerated cases must give us the slim-chested, long-waisted, peripatetic neurasthenic, drifting from one office to another, and finally exhausting all the modern pathies in the search for health. Such dependent colons must inevitably be sluggish in action, for they frequently have exaggerated hepatic and splenic kinks, which retard peristalsis, and thus a reservoir for deleterious fermentative products is established. When we assume that perfect alimentation is synonymous with ideal development we must logically follow the corollary: Imperfect alimentation will retard or lead to imperfect growth. If, therefore, we accept the theory which appears to be well based on embryological and developmental observations, that many cases of exaggerated constipation are of embryologic or early extrauterine origin, we are led to the inference that the so-called enteroptotic figure or faulty posture in these individuals arises from this defect rather than causes it. If this be true these patients can at best be only temporarily helped and not cured by orthopedic or gymnastic treatment. However, this is a digressive thought rather than a criticism, for no form of treatment should be left uninvestigated that may lead to the relief of these patients, for they are indeed miserable sufferers and form the list of undesirables in all medical offices.

Treves believes that these deviations in the colic arch are due to embryologic malformation and effects of persistent distention, for he found in these subjects that the dependent loop was overloaded and distended with fecal matter, and he anticipates our viewpoint when he says, "Such individuals have probably been the subjects

3. Brit. Med. Jour., 1880, i.

of chronic constipation and have more or less constantly presented a distended state of the colon."

How easy, too, as we have so often observed clinically, for these same individuals to become martyrs to an otherwise beneficent surgical operation through adhesions binding in fixed position the previously very sluggish bowel. Thus under such operative sequelæ a chronic constipation may become an obstruction of varying severity.

The descending colon is subject to few variations, and these are of small pathologic significance. On the other hand, the sigmoid flexure is given to extensive variations. The infant with the large, redundant and dilated sigmoid, suffering with Hirschsprung's disease, in my opinion, is only an exaggerated predecessor of the obstinately constipated adult with a lesser degree of sigmoid redundancy and dilatation. The sigmoid flexure in the adult varies in length from 7 to 27 inches, the average being about 7½ inches. There can scarcely be said to be a normal length, the variations in the sigmoid being so great. As with the transverse colon, one cannot apply the tapeline or measuring stick to this organ to define what is functionally normal. We must consider these cases from the symptomatic standpoint in order to determine the degree of functional abnormality in relation to anatomic defects. Just as the tapeline will not give us a measure of pathologic function, so does the *x*-ray also fail. This entire question must not be considered from these viewpoints, for they will lead to gross errors of judgment, just as such serious errors have arisen in thus viewing movable kidneys.

Actual and well-defined functional disturbances directly centering in these areas must determine the necessity for treatment. A kidney with a wide excursus, which has no renal crisis or fixed symptoms incident to ureteral obstruction, is not an organ for surgical intervention. On the other hand, another kidney with a much smaller excursus and yet the seat of renal or ureteral colic should be relieved by operation.

So one sigmoid of exaggerated length may yet functionate properly, and the surgeon who, because it measured more than 17 inches, should determine to suspend or excise it, would display poor judgment.

The gist of the whole matter is that neither the anatomic standard nor the *x*-ray picture is to serve as a standard for an operation. Symptoms, indeed, exaggerated symptoms must be the guide. Further, one cannot approach the surgical treatment of these cases with such optimism as experience justifies in acute surgical lesions, for if we accept the view that many of these cases are of congenital origin we have at best a defective machine to deal with, in which the dynamic power is seriously or hopelessly impaired and in which there will not be a healthful rebound such as gives such gratifying results in acute surgical cases. I believe we are establishing well-defined surgical principles in some of these cases, and that from this hitherto hopeless medical flotsam and jetsam brilliant cases of surgical cure may be culled, and, further, that while a complete cure may not be effected, at least a sufficient relief may result from well-selected surgical procedures as to cause us to give these poor individuals closer study in the hope that we may afford them even partial relief.

SYMPTOMATOLOGY

From our observations in this class of patients we have discovered that a very precise history is necessary. Too often the bald statement is found in a poorly elucidated history that the patient "suffers from constipation." Such brevity is worse than valueless, for this symptom should be traced with full elaboration back to its fundamental source. In this way only may we differentiate between a functional and an anatomic constipation. Even after a history traces the symptoms back to early infancy one should not jump to the conclusion that a serious developmental defect exists, for the therapeutic test must be applied. An individual in whom the regulation of diet or the administration of some simple laxative, even if necessary of constant repetition, cannot be said to be seriously affected. Such cases have no place in the surgical domain. On the contrary, when an individual must resort to powerful purgatives and drastic enemata, and especially if there is an associated tympanitis with painful peristalsis, he must be considered as suffering from some serious anatomic or pathologic defect. My point will be best illustrated by type histories, which point with accuracy not only to these defects, but also to the segment of the colon most involved.

CASE REPORTS *

REDUNDANT SIGMOID WITH GREAT PTOSIS OF TRANSVERSE COLON

CASE 2.—*History.*—Single woman, aged 27, of spare build, with no adipose tissue, bust being flat and undeveloped. Patient has never had any serious illness. Up to puberty had the average health of a young girl but was always greatly troubled from infancy with obstinate constipation. Does not remember the time when bowels were evacuated without a cathartic. For one year she was under constant treatment for anemia, taking large doses of iron. Her maximum weight is only 100 pounds. Her complexion is smooth but sallow. One year ago was seized with sudden severe pain in the right ileac region, although the pain was more or less general and of a paroxysmal, colicky nature, and was associated with abdominal distention, nausea and vomiting. This pain lasted several hours but the tenderness persisted at McBurney's point. For several years she had noted at times pain in the region of the ascending colon, and for some time there has been tenderness to pressure over the cecum and ascending colon. Deep pressure in ileac region causes pain to move upward to the hepatic area. Since the first attack she has had frequent colicky seizures which are always relieved by a bowel movement. She has always been embarrassed by loud borborygmus, and there is occasionally very distressing distention. She very definitely outlined the gurgling sensation along the course of the colon. No symptoms referable to gall bladder. Menstrual history normal. No backache; no renal or vesical symptoms.

Examination.—Pelvic examination negative. The *x*-ray reveals a greatly ptosed colon. The pelvic area shows a broad shadow making the differentiation of the transverse colon from the sigmoid impossible.

Operation.—Median hypogastric incision. Pelvic organs normal. Sigmoid flexure markedly redundant and dilated. Transverse colon markedly redundant; apex of colic arch in pelvis. Hepatic and splenic flexures in normal situation but greatly dragged on by colic ptosis. Cecum dilated. Appendix small, no adhesions, no sign of chronic inflammation. Twelve inches of sigmoid flexure resected, appendix removed, transverse colon suspended by Coffey operation.

Subsequent History.—Third day: Excellent recovery; condition satisfactory.

Seventh day: Wound healed. Bowels moved freely and easily.

Nineteenth day: Patient discharged to-day. Since the bowels were moved following the operation there has been a marked change in the ease of evacuation. While previously even large doses of cathartic failed, or only partially relieved the obstinate constipation (obstruction), now there is a spon-

* Some of the case reports are omitted. See footnote at beginning of article.

taneous movement as a rule, and at most only 15 drops of cascara are required to give two movements daily. There is no abdominal distention and the patient is enthusiastic over her improvement.

Four months have now elapsed since the operation and the return to health has been most satisfactory.

CONGENITAL ADHESIONS CAUSING PARTIAL OBSTRUCTION OF SIGMOID

CASE 3.—*History.*—Married woman, aged 24. Menstrual history normal. So far back as patient remembers she has had obstinate constipation. By persistent treatment she has had temporary intervals of comparative comfort. For the last eight years she has had a dull aching sensation in the left ileac region, and for the last six years she has had recurring attacks of sharp colicky pain in the left side, greatly increased by inattention to bowels and relieved to some extent by defecation. She volunteers the information that gas seems to meet some obstruction at the "sore spot." Posture does not change the character of the pain, but there is some abatement on lying down. For some time she has been under skilled medical treatment without relief. Enemata have been given, and during this time there has been considerable vesical irritability with frequent micturition. Recently there has been more or less mucus in the feces. She is subject to occasional attacks of sick headache. No indigestion; in fact, has an unusually good appetite. There is no excessive peristalsis. "The pain seems to be caused by gas rolling up against something."

Examination.—*X*-ray examination reveals a considerable massing of bismuth in the region of the sigmoid. No evidence of ptosis of transverse colon.

Operation.—Median hypogastric incision. On first attempt to ascertain cause of disability nothing of pathologic significance was noted, but after a closer inspection it was found that the sigmoid, instead of starting directly from the termination of the descending colon, continued along the pelvic brim and was firmly bound down by a congenital band of peritoneum which pulled the pelvic bend of the sigmoid close in against the pelvic wall. Above this point the intestine was greatly dilated; below, contracted.

The point of constriction corresponded to the area of pain. These peritoneal bands were divided by careful dissection, and on their release the sigmoid assumed its normal position. As there was danger of recurrence of the adhesions, several Pagenstecker linen stitches were carried from the base of the sigmoidal epiploic appendages to the ventral wall of the left groin, thus retaining the gut in its normal topographic position. A careful survey of the entire abdomen failed to reveal any other abnormality. The pelvic organs presented no trace of previous inflammation, thus excluding this focus as the cause of the adhesions.

Subsequent History.—The convalescence was uneventful, and the patient was uneventful, and the patient was discharged 21 days after the operation. All pain and sensation of obstruction promptly disappeared and the bowel resumed its normal function. Defecation was usually spontaneous. Four months have intervened since the operation without the slightest recurrence of her old symptoms.

EXCESSIVE PTOSIS OF THE TRANSVERSE COLON

CASE 4.—The following history illustrates the effect of potential congenital factors becoming active after childbirth:

History.—Married woman, aged 34. Has given birth to three children, the youngest being 6 years of age. Until four years prior to examination she was largely free from abdominal symptoms. At this time she was in a runaway accident and was thrown violently with another woman from the carriage, her companion falling heavily on her abdomen. She was unconscious for a time, and following this had fever ranging from 99 to 100 F. for several days. On getting up she was conscious of a constant feeling of pressure to the right of the umbilicus, extending from the costal margin downward to the right iliac fossa. She noticed, also, some time after eating, a constant churning sensation along the course of the ascending colon (suggestive of Cannon's description of movement in this area). There is also considerable distention in this area from gas. Appendicitis had been suspected. One year previously vesical tenesmus with frequent micturition became a distressing symptom, and was treated for some time without relief as cystitis, although the urine was always negative. She described a sensation as though something were rubbing against the bladder. All of the symptoms were markedly increased when standing. She particularly called attention to the fact that for the last ten years, since the birth of her first child, she had been greatly constipated, and this had become more exaggerated since the accident. She had been almost completely invalided for the last year.

Examination.—*X*-ray revealed a mass of bismuth entirely within the pelvis. With this picture as a guide in conjunction with the above history, a diagnosis of exaggerated ptosis of the transverse colon was made.

Operation.—Median hypogastric incision, revealing a very serious dislocation of the colon, even worse than indicated by the *x*-ray. The cecum and what should have been the ascending colon possessed a long mesentery. There was complete absence of any sign of an hepatic flexure. The cecum occupied the pelvis and six inches above it there was sharp angulation at the point where the colon passed obliquely upward to the splenic flexure. The colon proximal to the kink was greatly dilated as was also the appendix. The latter organ was as large as the little finger and distended with gas, without any point of constriction. Its walls were attenuated through over-stretching. Beyond the stricture the bowel was normal. The patient was particularly anxious that no unusual risk be taken, and although excision of a portion of the bowel seemed to be indicated we adopted the less hazardous operation of restoring the bowel as nearly as possible to its normal fixation points.

To accomplish this a second incision was made in the hepatic area. A point on the colon was selected for conversion into a hepatic flexure. Several peritoneal sutures were so placed as to snugly fix the intestine well back under the costal border of the liver. A careful examination of the upper zone of the abdomen revealed no further abnormality. The position of the stomach was essentially normal. After restoring the hepatic flexure a line of omental fixation was established across the abdomen, thus pulling the transverse colon well up out of the abdomen. The dilated appendix was removed. The kidneys were normal.

Subsequent History.—The subsequent recovery of the patient was uneventful although slow because of the severe asthenia. The bowels are still sluggish but are moved without difficulty. One aloes, strychnin and belladonna pill, with one drachm of sodium phosphate are sufficient laxatives.

For a time she suffered with painful peristalsis, but this subsided. The vesical symptoms disappeared within 24 hours and have not returned. She easily retains her urine for the normal length of time without discomfort. Likewise the "churning sensation" in the right side (Cannon movements), is no longer felt. Two months after leaving the hospital the patient reported from the Virginia Hot Springs that she had made splendid gains and was able to walk two miles without much fatigue and with great comfort. One week later on her return home further improvement was noted. The patient now has no abdominal discomfort.

CONCLUSIONS

1. Developmental anomalies are at the bottom of many cases of chronic constipation.

2. Posture is frequently a result rather than a cause of this ptosis.

3. Congenital potential factors are present in many individuals which become active through accident, such as traumatism, rapid and badly-cared-for childbirth, habitual constipation, operative adhesions, etc.

4. Neurasthenia often dates from childhood or puberty; operation, therefore, in the adult may give only partial relief because of this constitutional asthenia.

5. Cases in which there is a recent acquirement of the active factor give the best surgical results.

6. Various suspension operations are valuable in properly selected cases but disappointing in the remainder. At best these fixation points may be unstable.

7. Radical excision of obstructive portions of the large bowel may give the highest percentage of operative mortality but is likely to give the best ultimate results in the survivors.

8. In no field of surgery should haste be made slower than in this. It is not a field for the novice.

9. The most important factor in the diagnosis is a detailed clinical history pointing accurately to obstructive possibilities. A well taken skiagraph is of the greatest confirmatory value.

NOTE.—My two associates in this work, Dr. Floyd E. Keene and Dr. Nate Ginsburgh, will publish shortly papers on the embryologic and anatomic aspects of this question. I am greatly indebted to both for their assistance in this investigation.

2017 Walnut Street.

EXPERIMENTS WITH "CACTINA" AND "CACTIN" *

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The continued use by some physicians of the preparations of *Cactus grandiflorus* is perhaps sufficient justification for the publication of another investigation into their pharmacologic properties.

PART I.—EXPERIMENTS WITH CACTINA (SULTAN DRUG CO.)

The experiments to be described were begun at the request of Mr. F. Sultan, of St. Louis, Mo., who furnished the Cactina and also the Erlanger sphygmomanometer employed in part of the work. The investigation of Cactina was undertaken with the understanding that Mr. Sultan should furnish any apparatus needed, but that no compensation was to be made for the work, and that the results should be published after a report had been made to Mr. Sultan. Such a report was sent to him on July 4, 1908. Since that date some further experiments with Cactina and all those with Cactin (Abbott Alkaloidal Co.) have been performed.

EXPERIMENTS ON ANIMALS

It has been claimed that the effects of some of the alkaloids found in members of the cactus family are slow in manifesting themselves. This is said to be true of pellotin, a derivative from one or more species of the genus *Anhalonium*. To test this matter for Cactina, long continued experiments of blood pressure in dogs were undertaken. Six healthy and strong animals were employed in experiments lasting from four and a half to ten hours. Three animals were anesthetized with ether administered through a tracheal cannula and three with Grehant's chloroform mixture by the stomach.

All were given morphin hypodermically one-half hour previous to anesthetizing. The blood-pressure, pulse and respiration were studied by the graphic method.

The drug was administered in physiologic salt solution direct into the jugular vein. Varying doses were employed from as low as 0.13 gm. Cactina (0.65 gm. of dissolved pills of Cactina and milk sugar) in ten hours up to 6.5 gm. Cactina (32.5 gm. of Cactina and sugar) in nine and a half hours.

The tracings and tables from these experiments agree with the results of Hatcher[1] and Matthews.[2] There is absolutely no evidence of any strychnin or digitalis-effect, even under enormous doses. Throughout the six experiments there was noticed no constant rise or fall of blood-pressure. The blood-pressure rose somewhat at times and fell slightly at times, but not more than often occurs in an untreated animal, especially in an experiment continued over such a length of time.

The heart and respiration also were very regular and showed no constant or certain changes, as would have been sure to occur under digitalis or strychnin. The vagus nerve, stimulated at intervals in every experiment, always produced its usual effect on the heart. The temperature, as is usual in such experiments, fell from 1 to 3 degrees C. during the experiment. Never was there at any time heightening of the reflexes or convulsions or any other evidence of a physiologic action. Experiments with frogs to ascertain whether the diastole of the heart was affected in the manner described by Meyers[3] were also negative. No effect could be discovered, whether the drug was injected or was applied directly to the exposed heart.

EXPERIMENTS ON MEN

Series I: Experiments on the Pulse-Rate.—In the first series the pulse was counted before and after the administration of Cactina in a large number of healthy young men (medical students). The primary precaution in such experiments must be the elimination so far as possible of the psychologic element. The following tables show the results of suggestion on groups of medical students, to all of whom milk sugar pills were given. The determination of the pulse-rates was not made by the students concerned nor did the counter know what suggestion had been made.

A. The pulse-rates of a group of 13 students were counted. They were then given milk sugar pills. They were told that they had taken a heart stimulant. To make the case more vivid, the possible action of such drugs was discussed during the time intervening between the first and second counts. After 40 to 60 minutes the pulse rates were counted again. The results are shown in Table 1.

TABLE 1

Student.	Rate Before.	Rate After.	Change.
One	78	80	+ 2
Two	100	98	— 2
Three	94	106	+12
Four	74	80	+ 6
Five	108	106	— 2
Six	80	84	+ 4
Seven	82	90	+ 8
Eight	90	90	0
Nine	88	90	+ 2
Ten	60	70	+10
Eleven	76	94	+18
Twelve	54	64	+10
Thirteen	94	80	—14

Average increase, 4.2 beats a minute.

B. The pulses of 17 students were counted. Then they were given milk sugar pills and told that they had taken a new synthetic depressant. This was followed by a talk about possible action and results which had followed too large doses. After from 25 to 40 minutes the pulses were counted again, with results shown in Table 2.

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* From the Physiologic Laboratory of St. Louis University School of Medicine.

1. Hatcher, R. A.: Cactus Grandiflorus and Cactin or Cactina, THE JOURNAL A. M. A., Sept. 21, 1907, p. 1201.
2. Matthews, S. A.: Cactin and Cactina: An Examination into Their Physiologic Action, THE JOURNAL A. M. A., March 21, 1908, p. 956.
3. New York Med. Jour., lii, 681.

TABLE 2

Student.	Rate Before.	Rate After.	Change.
One	82	90	+ 8
Two	80	78	— 2
Three	58	60	+ 2
Four	72	70	— 2
Five	94	78	—16
Six	106	96	—10
Seven	74	68	— 6
Eight	92	90	— 2
Nine	72	70	— 2
Ten	64	66	+ 2
Eleven	96	88	— 8
Twelve	94	90	— 4
Thirteen	80	80	0
Fourteen	96	90	— 6
Fifteen	92	80	—12
Sixteen	84	76	— 8
Seventeen	84	76	— 8

Average decrease 4.4 beats a minute.

Although it is possible that part of the changes seen in these experiments are due to other causes than suggestion, the foregoing illustrate the need of every precaution to avoid suggestion in experiments on human beings. The need for precaution was further shown in one experiment in which students were given milk sugar without any suggestion. The first two students to be counted showed a lowered frequency and the rest jumped to the conclusion that they had received a depressant drug. Their counts were therefore nearly all low.

To avoid such results it was our custom to give half the class Cactina and the other half milk sugar, not telling any member what he was receiving but stating that half were taking merely milk sugar as a control. None of them knew what drug was being investigated nor the effects supposed to be produced. Three experiments of this kind were performed. The results of only one of these will be given here, as all agreed in the general result that Cactina had no effect on the pulse-rate.

EXPERIMENT 2: October 24, 1907. Each pulse-rate given is the average from 3 counts made by different men.

TABLE 3.—Part 1: Each student took 3 Cactina pellets; second count, one hour after taking.

Student.	Before.	After	Change.	
One	82	82	0	...
Two	107	102	...	—5
Three	71	71	0	...
Four	72	80	+8	...
Five	71	69	...	—2
Six	62	62	0	...
Seven	95	91	...	—4
Eight	76	80	+4	...
Nine	90	86	...	—4
Ten	70	67	...	—3
Eleven	89	85	...	—4
Twelve	82	85	+3	...
Thirteen	70	77	+7	...
Fourteen	86	83	...	—3
Fifteen	93	92	...	—1
			+22	—26

Part 2: Control; each student took 3 milk sugar pellets; second count, one hour after taking.

Student	Before.	After.	Change.	
Sixteen	81	80	....	— 1
Seventeen	72	72	0	....
Eighteen	81	82	+ 1	....
Nineteen	101	77	....	—24
Twenty	78	75	....	— 3
Twenty-one	80	91	+11	....
Twenty-two	96	92	....	— 4
Twenty-three	86	90	+ 4	....
Twenty-four	72	78	+ 6	....
Twenty-five	82	84	+ 2	....
Twenty-six	84	83	....	— 1
Twenty-seven	78	74	....	— 4
Twenty-eight	85	84	....	— 1
Twenty-nine	68	71	+ 3	....
Thirty	79	81	+ 2	....
Thirty-one	84	79	....	— 5
Thirty-two	81	73	....	— 8
Thirty-three	83	84	+ 1	....
Thirty-four	76	78	+ 2	....
			+32	—51
Omitting Student nineteen			....	—24
				—27

The decrease in the case of Student nineteen is abnormally large. Subsequent trials showed that his heart-rate was extremely variable. If we omit this case, the averages with and without Cactina are very nearly equal. In any case no general increase or decrease is indicated with either Cactina or milk sugar.

The pulse-rate is so responsive to a great variety of conditions that the slight differences in the averages cannot be attributed to the Cactina. Furthermore, one of the other experiments varied in the opposite direction.

The pulse-rate was also determined from the tracings made with the Erlanger sphygmomanometer. These determinations possess the value of eliminating the personal element on the part of the counter. No effect on the heart rate was demonstrable after the administration of Cactina in any dosage, even if continued through several days.

Series II: Experiments on Blood-Pressure in Men.—In this series of experiments eight healthy men were employed. The blood pressure was taken each day at the same time and under the same conditions, and with alternate periods usually of three days with and without Cactina. The usual dose was two or three of the pellets an hour during the part of the day that the man was awake. In some instances as high as twenty pellets an hour were taken for three hours in the morning, after which the blood-pressure and pulse-record were taken. In all about 200 tracings were obtained by the Erlanger apparatus, and at the same time the pressure was taken by the Riva-Rocci method. Study of the tracings and tables reveals no effect of Cactina.

Table 4 shows the results obtained with four of the subjects. "N" indicates "no drug" during previous 24 hours or more. "C" indicates "Cactina" taken at intervals during previous 24 hours or more. The determinations were made at the same time each day. Usually two or more trials were made at each sitting. The figures given are averages of each day's results.

TABLE 4.—EXPERIMENTS WITH THE SPHYGMOMANOMETER, SHOWING MM. OF MERCURY AT WHICH THE PULSE RETURNED (RIVA-ROCCI METHOD).

W. B. B.		L. B. B.		J. E. P.		E. P. L.	
1908.	mm.	1908.	mm.	1908.	mm.	1908.	mm.
4/22 N	102	4/22 N	104	4/27 N	114	4/30 N	113
4/24 N	105	4/28 N	97	4/25 N	112	4/29 N	112
4/27 N	97	4/30 C	100	4/30 N	111	5/ 1 C	115
4/27 N	105	5/ 1 C	102	4/29 N	117	5/ 2 C	110
4/28 N	105	5/ 4 C	105	5/ 1 N	118	5/ 4 C	113
4/30 C	96	5/ 5 N	96	5/ 2 C	108	5/ 5 N	109
4/29 C	103	5/ 6 N	107	5/ 5 C	111	5/ 6 N	112
5/ 1 C	104	5/ 7 N	106	5/ 6 C	119	5/ 7 C	114
5/ 2 C	106	5/ 8 N	104	5/ 7 C	115	5/ 8 C	113
5/ 4 C	107	5/11 N	96	5/ 8 N	117	5/ 9 N	114
5/ 5 N	107	5/12 C	98	5/ 9 N	115	5/11 N	113
5/ 6 N	97	5/14 C	104	5/12 N	103	5/13 N	113
5/ 7 C	95			5/11 N	110	5/12 N	115
5/ 8 N	104			5/13 N	108	5/15 C	107
5/ 9 N	97			5/16 C	115		
5/11 N	96						
5/13 N	97						
5/14 C	94						

	W. B. B. mm.	L. B. B. mm.	J. E. P. mm.	E. P. L. mm.
Average without Cactina..	101.1	101.4	112.5	112.6
Average with Cactina.....	100.7	101.8	113.6	112.0

PART II.—EXPERIMENTS WITH CACTIN (ABBOTT ALKALOIDAL CO.) ON BLOOD PRESSURE AND PULSE-RATE IN MAN

Series I.—In these experiments with Cactin only human beings were used. Eight normal men were tried at first. From this number, after several normal tracings were taken, four were selected whose blood-pressure varied the least from day to day. We thus eliminated those of a nervous temperament in whom the psychic element would make our determination of a less conclusive nature. The blood-pressure of the four men selected was taken by both the Erlanger and the Riva-Rocci methods for several days at as near the same hour and under as near the same conditions as possible. From these determinations the normal average was reckoned. After a few days another determination was made in most cases to see if the blood-pressure showed any decided change.

These records were followed by the administration of Cactin which was bought in open market in St. Louis. At first therapeutic doses, as recommended by the manufacturer, were administered. This was continued several

days and cumulative effects were looked for. No effect of any kind on blood-pressure or heart-rate was demonstrable.

After several days, in which no drug was used, another series of tests was made, in which from ten to fifty times the recommended dose was given repeatedly for several days. No objective effects were seen either immediately or at any time. On being asked concerning subjective symptoms the subjects (who did not know what they were taking) stated that they did not feel anything. They were emphatic in the belief that they were not receiving any effective drug.

Series II.—At a later date, on a new lot of students, a series of pulse-counts was made.

EXPERIMENT 1. April 5, 1910, a. m. The pulses of 36 students were counted for half a minute, each three times. They were then told the purpose of the experiment and that part would receive milk sugar and part a drug, but that no one was to know what he personally received. In Group I each one received three sugar pills. In Group II each received three Cactin pills of 1/67 grain. During the next hour they remained quiet, a lecture being given to occupy the time and divert their attention. Then the second count was made, each man's pulse being counted three times by separate individuals. After another hour of lecture the third count was made. The results are shown in Table 5.

TABLE 5

GROUP 1: MILK SUGAR PILLS

Student.	Average Before Taking.	Average After One Hour.	Average After Two Hours.
One	45	38	40
Two	52	42	43
Three	49	37	43
Four	43	34	36
Five	37	33	32
Six	32	28	28
Seven	34	31	35
Eight	34	31	32
Nine	34	28	27
Ten	39	35	36
Eleven	35	32	36
Twelve	45	40	40
Thirteen	42	38	36
Fourteen	42	35	38
Fifteen	44	37	36
Sixteen	48	38	38
Average	41.9	34.8	36.0
Average change	...	—7.1	—5.9

GROUP 2: CACTIN PILLS

Student.	Average Before Taking.	Average After One Hour.	Average After Two Hours.
One	32	28	33
Two	40	33	34
Three	34	31	31
Four	37	33	33
Five	37	31	32
Six	40	40	37
Seven	36	32	34
Eight	46	35	36
Nine	38	34	32
Ten	45	41	39
Eleven	38	30	32
Twelve	39	36	36
Thirteen	36	30	32
Fourteen	45	35	36
Fifteen	37	30	34
Sixteen	41	35	37
Seventeen	42	40	37
Eighteen	32	28	29
Nineteen	40	35	33
Twenty	43	37	36
Average	38.9	33.7	34.2
Average change	...	—5.2	—4.7

EXPERIMENT 2: April 5, 1910, p. m. The pulses of 24 students (not those used previously) were counted for half a minute, three counts being made for each man. The experiment was repeated as above, except that half of the men took from six to twelve Cactin pills, each 1/67 grain. The results are shown in Table 6.

TABLE 6

GROUP 1: MILK SUGAR PILLS

Student.	Average Before Taking.	Average After One Hour.	Average After Two Hours.
One	36	42	41
Two	34	31	33
Three	34	28	28
Four	37	31	32
Five	32	32	30
Six	31	28	26
Seven	37	38	37
Eight	39	36	33
Nine	39	32	31
Ten	48	44	38
Eleven	40	37	39
Twelve	33	35	34
Average	36.7	34.5	33.5
Average change	...	—2.2	—3.2

GROUP 2: CACTIN PILLS

Student.	Average Before Taking.	Average After One Hour.	Average After Two Hours
One	37	37	34
Two	46	40	39
Three	39	37	33
Four	37	37	34
Five	41	35	35
Six	33	29	28
Seven	37	34	33
Eight	44	44	38
Nine	31	30	31
Ten	35	29	30
Eleven	38	36	35
Twelve	40	36	34
Average	38.2	35.3	33.7
Average change	...	—2.9	—4.5

It will be noted that there was a decrease in the average heart-rate in both groups and in both experiments. This was doubtless partly due to the fact that the first count was shortly after a meal; also partly, perhaps, to too short a rest in sitting posture (five to ten minetus) allowed after the students entered the laboratory before the first count was made. Perhaps the psychologic element of interest also had a part. It will be noted that in the first experiment the average decrease was less for those taking Cactin. It would have been easy to ascribe the difference to the drug, but the reverse was true in the second experiment. It is therefore evident that the differences in the averages are only such as one should expect when using no greater number of individuals. These results impress one with the need of caution to be observed in drawing conclusions from a limited number of experiments. It will be noted that during the second hour the average pulse-rate for the first experiment went up. In the second experiment, second hour, it went down. In both experiments "Cactin" and "milk sugar" averages go hand in hand.

CLINICAL RESULTS

Series III.—One of the authors (Qualls) has had the opportunity during the last year of testing Cactin clinically on patients in the City Hospital. Records of the pulse and systolic blood-pressure were made through long periods of time. For the most part patients were selected who were confined to their beds so as to eliminate the changes inevitable in persons who are moving about. It was thought wise to study first the effect of rest in bed, in order to be able better to interpret the cases in which the drug was used. The record of such a case follows:

CASE 1. *History.*—Patient entered the hospital Feb. 12, 1910, complaining of weakness, loss of appetite and shortness of breath. The heart-rate was rapid, and the pulse weak and irregular. Some ventricular systoles did not reach the radial pulse. The rate of perceptible radial pulse varied markedly, at times reaching 150 per minute. The patient's feet were swollen; he was cyanosed, and breathing was difficult. Urine showed large amount of albumin.

Diagnosis.—Nephritis, myocarditis and edema of lungs. The patient was put to bed and put on a milk diet for a few days, together with diuretics and cathartics. From a study of vascular system with the daily determination of blood-pressure it was seen that patient required no cardiac stimulant. Records of pulse and blood-pressure were as follows (each pressure given is the average of two or more trials):

TABLE 7

Date.	Pulse Rate Per Min.	Blood Pressure mm. of Hg.	Date.	Pulse Rate Per Min.	Blood Pressure mm. of Hg.
Feb. 12....	150	140	Feb. 21*...	70	115
Feb. 13....	120	145	Feb. 22....	72	108
Feb. 14....	115	135	Feb. 23....	70	112
Feb. 15....	90	135	Feb. 24....	80	135
Feb. 16....	105	120	Feb. 25....	72	120
Feb. 18....	76	100	Feb. 26....	80	125
Feb. 19....	60	95	Feb. 27....	65	115
Feb. 20....	67	100	Feb. 28....	75	120

* Diet increased on this date.

Inspection of Table 7 shows that as patient was relieved of his edema and toxemia his blood-pressure was lowered. The pulse-rate also was lowered and much more regular. A freer diet was given and the pressure became higher. The patient's condition required rest in bed during time determinations were made. He improved and was discharged from hospital with only slight cardiac arrhythmia. This case demonstrates what erroneous conclusions might be drawn as to the value of so-called cardiac tonics if some inert substance had been given during early part of the time the patient was in bed.

The foregoing is a fair sample of five cases in which no drugs were given from date of admission for periods of seven to thirty days and in which similar "steadying" of the pulse and readjustment of blood-pressure occurred. Following these experiments eight cases were studied in similar manner, Cactin being administered for some portion of the time. A fair example follows:

CASE 2. *History.*—The patient entered the hospital Jan. 28, 1910. Clinical diagnosis, tabes dorsalis with Charcot's joints. Patient was at rest in bed. Some slight arteriosclerosis of radials; no other marked sclerotic findings in vascular system. After patient's pulse and systolic pressure had been determined for ten days, Cactin was commenced, as shown in Table 8, with results as indicated. Every blood-pressure determination in the table is the average of two trials.

TABLE 8

Date.	Pulse Per Min.	Blood Pressure mm. of Hg.	Drug.	Grains Per Day.
February 6.....	99	135	None	
February 7.....	90	132	None	
February 8.....	89	122	None	
February 9.....	90	125	None	
February 11.....	96	126	None	
February 13.....	115	135	None	
February 14.....	81	120	None	
February 15.....	84	108	None	
February 16.....	90	125	None	
February 18.....	72	100	None	
February 19.....	78*	102*	Cactin	1/34x4
February 20.....	90	118	Cactin	1/17x4
February 21.....	99	142	Cactin	1/17x4
February 22.....	87	115	Cactin	1/17x4
February 23.....	88	115	Cactin	1/67x3
February 24.....	75	115	Cactin	10/67x3
February 25.....	81	130	Cactin	10/67x4
February 26.....	81	125	Cactin	20/67x4
February 27.....	78	112	None	
February 28.....	75	108	None	

* In all cases the drug was administered during 24 hours previous to determination.

If now we calculate the average pulse and blood-pressure for the first ten days during which no drug was given we get 90.6 and 122.8 respectively. For the eight days during which Cactin was given the pulse averages 84.7 and the blood-pressure 120.2. If we average all the days, "before and after taking" in which no drug was administered we have pulse, 88.2; blood-pressure, 120.7. Averaging two days without drug following the period of administration: pulse, 76.5; pressure, 110. In other words pulse and pressure go down "on drug" and also "after drug."

Of more significance is the general observation that the blood pressure and pulse vary as much under the drug as without and that during the drug period there is no relation between the determinations and the dose nor any cumulative effect.

CASE 3.—The patient had tabes dorsalis and cirrhosis of liver. The results of the experiment are shown in Table 9.

TABLE 9

Date.	Pulse Per Min.	Blood Pressure mm. of Hg.	Drug.	Grains Per Day.
February 6.....	115	118	None	
February 7.....	118	135	None	
February 8.....	115	125	None	
February 9.....	115	115	None	
February 11.....	115	122	None	
February 13.....	88	100	None	
February 14.....	90	120	None	
February 15.....	90	130	None	
February 16.....	96	105	None	
February 18.....	90	118	None	
February 19.....	90	120	Cactin	1/34x4
February 20.....	90	110	Cactin	1/17x4
February 21.....	84	115	Cactin	1/17x4
February 22.....	84	110	Cactin	1/17x4
February 23.....	90	115	Cactin	1/67x3
February 24.....	90	118	Cactin	1/67x3
February 25.....	91	112	Cactin	10/67x4
February 26.....	90	118	Cactin	20/67x4
February 27.....	96	116	Cactin	50/67x2
February 28.....	90	115	None	

The average pulse and pressure respectively for the ten determinations before the drug was given we find to be 103.5 and 118.8 For the nine days during the administration of the drug 89.5 and 114.9. A lowering of the pulse and pressure as the result of Cactin might be asserted. But suppose we omit the first five days during which the rest in bed manifests its "steadying action." The averages without drug are now 91, pulse; 114.6, pressure; results more nearly like the Cactin averages than the average of any five days of its own period.

The two experiments cited show averages of pulse and blood pressure under the drug slightly less than those of the preceding "no drug" period. It is possible to get just the opposite result, for example:

CASE 4. Typhoid complicated with nephritis.—On Feb. 5, 1910, after patient's temperature was normal, determinations of systolic pressure were commenced. Patient was still on typhoid diet and was gradually put on full diet during the course of the experiments; he also was kept in bed during the course of the experiments.

Results.—Average pulse for thirteen days, February 5-18, no drug, 87.7; average blood-pressure, same period, 110.4 mm. Cactin treatment then begun, dosage from 4/34 grains to 1 grain a day. Average pulse-rate for periods, 97.5; average blood-pressure, 118.7 mm.

It is seen that the average blood-pressure after the administration of the drug is about 8 mm. higher than before drug was given; but this is no more than could be expected with a patient recovering from an infectious process, with the increase of diet. It was also seen that the systolic pressure bore no relation to the amount of drug used; for example, on February 27 the largest amount of drug was given; however, the blood-pressure was lowest on this day of any time during which patient received the drug.

Another example of rise of blood-pressure during administration of Cactin follows, but in this case the pulse average goes in opposite direction.

CASE 5. *Diagnosis.*—Trichinosis complicated with nephritis. After the temperature was normal and the patient was able to leave the bed and walk about, the experiment was begun.

Results.—The average pulse and pressure for eleven days without drug were respectively, 82.5 and 108; for eight days following on Cactin treatment averages were 77.6 and 120.1, respectively. The dose varied from 3/67

to 100/67 grain a day. There was no relation between the pulse or pressure and the dosage.

One more case will be cited in which the "enormous" (?) dose of 3 grains a day of Cactin was administered.

CASE 6. Tuberculosis of hip.—Circulatory system normal. In bed from Jan. 28, 1910. Experiment begun March 20, 1910. Results shown in Table 10.

TABLE 10

Date.	Pulse Per Min.	Blood Pressure mm. of Hg.	Drug.	Grains Per Day.
March 20	89	108	None	
March 21	84	118	None	
March 22	90	107	None	
March 23	84	110	None	
March 24	86	112	None	
March 25	87	115	Cactin	10/67x2
March 26	84	104	Cactin	10/67x3
March 27	89	102	None	
March 28	90	112	None	
March 29	90	105	None	
March 30	90	102	Cactin	50/67x4
March 31	88	112	None	
April 1	98	115	None	
April 2	81	102	None	
April 3	84	102	None	
April 4	75	102	None	
April 5	90	98	None	
April 6	81	104	None	

It is evident that there are no variations in heart beat or blood pressure attributable to the Cactin.

SUMMARY

A large number of experiments were made on animals, on healthy young men and on patients in bed, and no effects of "Cactina" (Sultan) or "Cactin" (Abbott) could be demonstrated.

THE RÔLE OF OBSTETRICS IN PREVENTIVE MEDICINE*

W. P. MANTON, M.D.
DETROIT

With rare humor Dr. Oliver Wendell Holmes once wrote a prescription for longevity. Arriving at 60, to attain the ripe age of 80 "become the subject of a mortal disease," he says; but he fails to enlighten us as to how we may reach the year at which to begin his remedy. It is the object of every living being to lengthen life to the utmost, and in this prolongation of existence lies, with qualifications, the success of the state and the race. But as from the intervention of disease, few attain to that period when "every man with his staff in his hand for very age" marks the decline of usefulness, it is the object of preventive medicine to attempt so to safeguard life that it may be lengthened out to four-score years and ten of normal existence. Every century sees improvement along these lines, for increasing knowledge of disease brings with it the power and ability, not only to cope with existing conditions, but to anticipate and forestall those disorders which in their course tend to premature death or functional disability—a condition so nearly allied to non-existence as to render its subject of little or no value to society.

"To prepare us for complete living," says Herbert Spencer, "is the function that education has to discharge," and it is only through the education of the people and the profession—and one is sometimes inclined to agree with Gowers that "knowledge filtrates slowly through the profession"—that results can be attained in the uplift of the whole.

The subject which has been assigned me, the rôle of obstetrics in preventive medicine, is so broad and comprehensive that in the time allowed for its presentation I can hope only to touch on a few of the well-known facts, leaving much of profit to be brought out in discussion.

DEFINITION OF OBSTETRICS

Ask any ten men in the medical profession what they understand by the term "obstetrics" and the majority will give the dictionary answer, the care and attention rendered woman at the time of childbirth. But this is obviously too narrow and restricted a concept, for it has regard to only one of the actors in the drama, the mother, while the child, in which are grouped all of individual, family and national potentialities, is ignored, and the father left entirely out of the question. It is evident that if obstetrics has a place in preventive medicine its definition, in its broadest sense, must include all of those factors which enter into the production of children and the employment of all of those agents which make for strong and healthy bodies and sound mentality. Thus defined, the scheme of obstetrics would embrace the whole of the life of woman from gamete existence to climacteric accomplishment, the child from conception to birth, and to an extent the man also. By this we may understand that the obstetrician's duty does not begin and end with the delivery of the parturient, but reaches back to a consideration of heredity, and the study of antenatal development and pathology, including all of those conditions which make for the welfare of the child.

And it thus becomes evident that the science of obstetrics is complex, and so mortised with biology, pathology and general medicine that it is inseparable from either of these, and that while, like the colors of the spectrum, each component part is susceptible of analysis, each is so blended and interwoven with the others that it is only when taken together that a complete and luminous whole is possible.

EUGENICS

Whatever may be our views regarding the inviolability of the germ-plasm, it is certain that characters and tendencies are handed down from generation to generation, and that disorders manifested in the parents may be reproduced in their progeny. The breeding of best to best must result in the production of the best, while, conversely, the issue of bad and bad or bad and good cannot attain to the same standard of excellence, even with the aid of "ancestral pull."

Stirpiculture may not be as readily directed in the human species as in the lower animals, and yet a persistent propaganda by way of suggestion, warning and advice on the part of physicians would in ultimate outcome be of greatest profit. If the marriage of those possessed of a family "taint," of the consanguineous, and of the socially and morally unfit could be prevented, eugenics would be advanced, the results for good would be incalculable, and the financial saving to the state enormous.

Inherited weakness in man, and especially in woman, is often magnified in the products, for, as Thomson observes, "an individual inheritance is a mosaic of ancestral contributions." Fortunately, sterility often puts a stop to further degeneracy along these crooked lines; and in the interval preventive medicine attempts its best to bolster up a feeble and tottering organism. And this is worth while, as, according to Hamilton, where a "vicious line is introduced it may die out, and probably

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

does in most cases die out by interbreeding with a series of pure stocks;" even if "no reliance can be placed on its not recurring atavistically, it may be generations after."

Prophylaxis, therefore, must begin with life before birth and continue during the period of reproductive activity; an undertaking of vast proportions; but why should not the relation of the state and the physician be reciprocal?

FACTORS INFLUENCING FETAL DEVELOPMENT

Although maternal impressions, as popularly understood, are probably scientifically impossible, it is well established that impressions are constantly influencing the child during the whole of intrauterine gestation. Our knowledge of these facts is not imaginary but is derived from laboratory experiments and investigation, pathologic chemistry and clinical observation.

From the beginning of pregnancy the anatomic barriers between mother and child are such that no particle of formed matter can pass from one to the other, but untoward tendencies, notably an unstable mental and nervous organization of the mother, and deranged maternal metabolism, may seriously interfere with the nutritive processes of the child, or produce diseases of the fetal structures terminating in maldevelopment of organs, which end existence or prevail in crippled function throughout life. Morbid conditions arising within the placenta itself may prove, not only injurious or fatal to the fetus, but of serious consequence to the mother (hydramnios, hydatidiform mole, etc.).

It is also demonstrated that continued or repeated violence to the nested ovum is capable of producing malformations and monstrosities, and strong mental emotions, fright and traumatisms of the mother not infrequently lead to maldevelopment of body and mind in the offspring.

The placenta has been found not to be the perfect filter, as was formerly supposed, for morbid germs pass through its substance and invade the fetus, giving rise to the same diseases as suffered by the mother or to equally serious conditions (syphilis, tuberculosis, septic infection, smallpox, etc.). Other maternal disorders, the active agents of which may not be demonstrable in the fetal tissues and some of which may remain dormant for a considerable time after birth, sooner or later become manifested in postnatal life.

Again, toxic agents, for example, alcohol, tobacco and lead are responsible for fetal malformations and mental obliquities, frequently reappearing in successive generations. It is true that the presence of most of those antenatal disorders to which reference has been made cannot be diagnosticated during intra-uterine existence, and that malformations and monstrosities are largely due to errors of embryonic development, still, with the knowledge acquired from antenatal pathology, we are in position to apply anticipatory measures in the interests of both mother and child, and by prophylaxis and timely interference, to bring about results which, in a proportion of cases at least, must make for greatest good. In undertaking preventive measures, however, we must not lose sight of the fact that many antenatal conditions are dependent on circumstances antedating uterogestation, so that to insure somewhat of success preventive steps must be inaugurated before the advent of conception. In other words, prophylaxis must be started with beginning postnatal life. Especial attention must therefore be directed to the proper management of the child, and efforts made not only to prevent or inhibit the diseases of that period of life, but also to eliminate as far as possible all those factors of the plastic years which may result in conditions inimical to future normal pregnancy and motherhood.

FACTORS INFLUENCING POSTNATAL DEVELOPMENT

"The rearing of healthy children," says Knopf, "is the most valuable asset to a nation's strength and prosperity," but this is impossible unless the whole cycle of reproductive life be included.

The sequelæ of the acute exanthemata and other diseases in the kidney and pelvic organs may have a bearing on fertility and the pregnant state, the one by possible influence on normal development of uterus and ovaries, the other by weakening organs on the integrity of which depends so largely the successful progress and outcome of normal pregnancy.

The influence of scarlet fever in the production of cardiac disease and as a direct cause of deaf-mutism, which in Great Britain is reported to reach as high as 23.5 per cent., may also be mentioned. Moreover, according to Gowers, "more cases of epilepsy are consecutive to scarlet fever (apart from the influence of nephritis), than all other acute diseases put together"; while Funkhouser has recently pointed out the importance of this disease as an etiologic factor in the causation of psychoses (postfebrile and exhaustive psychoses, dementia præcox, etc.).

Regarding other diseases of childhood which may lead to future obstetric disaster, much might be said, but I will confine myself to calling attention to one of the most important and far-reaching evils in this connection, namely, child-labor. Fürst has called attention to the relation between severe continued bodily exertion and uterine deviations and adnexal inflammations. During the formative years of life when the local organs are most susceptible to external as well as internal influences, the increase of intra-abdominal pressure from heavy lifting and straining, especially with overfilled bladder or rectum, favors pelvic congestion and displacements. If to these be added the nervous strain induced by monotony of work, as in factories, with the relaxation of tissues in a deteriorated body from unhealthy environments, lack of fresh air and liberty for out-door exercise, poor and insufficient food and a life of poverty, we have an array of agents the baneful operations of which cannot be overestimated. A recent writer in a popular publication has well summarized the effects of such unhealthful occupation. "The factory woman," she says, "if she is married, is too tired to show much attention to her home. She may give her baby drugged cordials to keep it quiet; most of her children die near infancy and those that survive are anemic. If she is not married she is likely to be some time, and she is using up energy that belongs to her children, to whom she will give an enfeebled life, and so bring down the general average of the race."

Were these the worst features that might be enumerated they would be bad enough, but of still greater importance to the future mother are the effects produced on the development of the pelvis in young girls—deformities and contractions—which may become evident only at time of parturition. In many of the conditions induced by child-labor the symptoms may at first be so slight as to escape attention, but their sequelæ are sure to appear later; in the unmarried in the form of amenorrhea, dysmenorrhea, endometritis, oöphoritis, salpingitis and the like; while after marriage they are shown in metritis, sterility, abortions, difficult or impossible

delivery, etc., the maternal and fetal mortality and morbidity statistics of childbed being thereby largely increased, with a growing list of female morbidities met with in the clinics. If laws could be enacted and enforced controlling child-labor, the rôle of obstetrics in preventive medicine would be greatly lessened.

HEALTH AND DISEASE IN PREGNANCY

Pregnancy being, according to the books, a physiologic process through which most women pass without untoward event, the practitioner in the past has presumed too much on "Nature's" ability to take care of the gravida, and has therefore shirked responsibility. But the effect of the growing ovum on the maternal organism differs in different individuals, and it is wrong to assume that a process which may be normal in one is necessarily normal in all. As a matter of fact, of which we are all cognizant, the border-line between health and disease in pregnancy is often a shadowy one, and unless the patient's health is closely supervised during the whole period of uterogestation serious complications may arise, which, in their culmination, may prove of gravest import to the mother, child, or both, with resulting discomfiture, mortification and regret to the physician. It is an old adage, but true, that "he who cures a disease may be the skillfullest, but he who prevents it is the safest physician."

Newell has called attention to two types of women with which the physician of to-day has to deal; one, the natural woman, generally of the poorer class, in spite of privations and hard work, preserving a vigorous and healthy body and ignorant of nerves, goes through her pregnancy and labor with the least possible difficulty and without after reaction; the other, the "overcivilized" woman, in whom the nervous system is exaggerated and overdeveloped—whatever may be her somatic state—stands the trials of pregnancy but poorly; the test of labor becomes almost a pathological process; and the woman too often, from the imposed strain, breaks down after delivery is accomplished. The latter is usually the product of the older communities, where social obligation stands first, antagonizing the rearing of healthy children, and imposing conditions the penalties for which are exacted by maternity. But into whichever class the patient may fall, she must not be disregarded during this greatest of tests of bodily fitness, and each patient must receive that care and solicitious attention which the condition demands. Knowing that every abnormal process, preceding or inaugurated during pregnancy, is presaged by some sign or symptom, the physician should be ever alert to detect the earliest evidences of threatening danger, and, by anticipating possible evils, seek to check those morbid showings which may lead to serious results. Women who exhibit or have shown in former pregnancies, a tendency to pathologic complications should receive particular care and attention. In this connection much might be accomplished by the establishment of what Ballantyne calls prematernity hospitals, or the setting aside of special wards in existing lying-in institutions, where morbid pregnancies might be studied and "their treatment elaborated and placed upon a sure basis founded on experience." In such a hospital the poor would be cared for free of expense, and the well-to-do and rich placed under the most favorable conditions for a happy termination of a morbid gestation. The benefits to be derived from hospital treatment and supervision, especially in the instance of the working woman, under normal conditions, has been investigated by Pinard and others, and it has been found that the children of such patients, who were thus enabled to rest during the days preceding confinement, are heavier in weight, and undoubtedly healthier and stronger than the infants of those who engage in active work up to the onset of labor.

RESPONSIBILITY OF THE OBSTETRICIAN

Nature is said to be kind, for out of the thousands of women delivered annually, few, in comparison, suffer seriously from the disorders of pregnancy. The sins of omission may possibly be forgiven but not so those of commission, for which there is often little or no excuse excepting ignorance and unskilfulness. It is in the delivery of the patient that the physician displays his shortcomings most conspicuously. Into his hands are committed the lives of two individuals, and how often the responsibility is lightly assumed and without thought of fitness for the task! And yet how important to the future of the patient is the skilled conduct of labor, and how frequently is indifferent and sloppy midwifery responsible for years of suffering and ill-health in the after life of the mother, while the child may perish or not as the case may be!

Midwifery is the golden key which unlocks future possibilities and success to the young physician by opening up opportunities to family practice which might otherwise be difficult or impossible to obtain. And yet it is safe to assert that, whatever may be the reasons assigned, in no department of medicine in which he is called on for conscientious and capable action is the beginner—and this unfortunately applies to many an older practitioner—less equipped and competent than in obstetrics. We demand that the educated and well-qualified physician, before entering into private practice, shall have had a hospital training in medicine and surgery, but who has ever heard it urged that he shall also round out his knowledge by experience gained in a maternity? The question when to interfere in delivery or when to abstain from active assistance, demands rare judgment and experience, as well as when by preventive measures may be gained the ounce of safety that is worth so many pounds of after-treatment.

If, as President Eliot says, the first duty of the physician is to prevent as well as cure disease, "the first step in prophylaxis," as some one cleverly remarks, "is to get a sufficient experience with what one wishes to prevent," and nowhere outside of a maternity hospital can this be so successfully accomplished.

Obstetrics has made great advancement during the past quarter century and the observance of asepsis and the larger knowledge of morbid conditions and their sequelæ which has been acquired have enabled the practitioner to afford assistance to the parturient under circumstances which in the past would have been impossible. As illustration, the interest which has been manifested within the past few years regarding the contracted pelvis is noteworthy as indicating the trend of modern obstetric thought and purpose.

MANAGEMENT

In the question of the management of such cases many different considerations are involved, and it is only by weighing the mortality and morbidity of mother against those of child, with reference to any given operation, that the one promising most satisfactory results can be adopted. A familiarity with the bony pelvis, being the foundation for a knowledge of treatment, leads to the consideration of those elements which conduce to the intra-partum safety of the mother as well as the safe

delivery of the child. By careful pelvimetry, a study of the woman's physical and nervous make-up, and information gained as to the size of the fetal head in relation to that of the canal through which it must pass, the obstetrician is enabled to determine to a degree what may be expected at time of labor, and sometimes to inaugurate preventive measures which may secure relief, but always to prepare before hand for such intervention as may become necessary in the individual case.

While it is true that the interpolation of accidental conditions, which often cannot be anticipated, make "foreknowledge absolute," impossible, yet, the physician being to a large extent forewarned, the fault is his if in the time of need he is not also found forearmed.

The prophylaxis of the puerperium should be anticipated in pregnancy and in labor, for a clean gestation and a clean delivery usually sign for a healthy childbed. The occasional development of a pathologic state post partum must be met as it arises, but that many, if not most, of these are preventable incidents is within the experience of all. Unwise and uncalled-for tinkering by the physician—frequently resulting from alarm occasioned by a rise in temperature due to an overdistended bladder or rectum, to nervous irritation or some such trifling cause—are responsible to a large extent for the mishaps of the lying-in period. Only recently I have seen in consultation two cases of pelvic abscess which resulted, in each instance, from unnecessary curettage, and which entailed weeks and months of suffering to the women, to say nothing of the apprehensive fears of physicians and families, and the unnecessary expense to those who were not in position to bear the burden.

MIDWIVES

The advent of septic infection in the lying-in woman has rarely an excuse, for the principles laid down by Holmes and Semmelweis, Pasteur and Lister, if carried out, make the occurrence of this disorder mostly preventable, so that the responsibility and blame for its presence must be borne by those who have the patient in charge. That the midwife, especially in congested districts, is generally accountable for the morbidity and mortality resulting from infection during and after labor, is evident from the reports of city boards of health. Miss F. Elizabeth Crowell, who personally visited 500 midwives in the Borough of Manhattan, New York City, found that of this number only fifty, or 10 per cent., could be qualified as capable and reliable, and those seen represented only about half of the practitioners in that borough.

We require that the physician shall have taken a prescribed course in a reputable medical school, the examinations of which he must have passed and later those imposed by a state board of registration, before he can legally enter into practice, and yet we permit, in many states without a question, an ignorant and dirty woman, such as depicted by Miss Crowell, "whose hands were indescribable, whose clothing was filthy, the condition of whose bag beggars description," to officiate in obstetrics, an important branch of medicine, and thus to slay and kill without one word of protest. Laws there are, which are enforced, for the protection of children, animals and birds, but the unfortunate mother and new-born babe are left unprotected to the mercy of the mercenary and indifferent. With all our vaunted philanthropy it would seem as if the times were ripe and civilization advanced enough for legislative control of these carriers of disease and death, and it should be the especial concern of every physician having the welfare of his community at heart constantly to urge, in season and out of season, either the elimination of the breed, or, what seems more desirable, the creation of educational standards and state examinations and a supervision of midwives by legislative enactment.

DIFFICULT LABOR AND INFANT MORTALITY

The dangers to the infant incident to prolonged and difficult labor should ever be borne in mind, and early intervention in the interests of the child, when not inimical to the welfare of the mother, should be the rule of practice. But in carrying out such prophylactic measures it must not be forgotten that forceps and manual traction on the child are capable of much mischief, often resulting, if not in immediate trouble, in subsequent disorders of the brain and nervous system. The latest government statistics for the year 1907 and 1908 show that one-fifth of the deaths that occurred during that period were in infants under one year of age, while during 1908 more than one-eighth of a million (136,432) babies died in about one-half the total population of the United States. Ignorance and society have been largely responsible for the disastrous conditions which have heretofore prevailed, for, according to Prof. Irving Fisher, 47 per cent. of the diseases of the neonatus are preventable. Goussew states that in the Munich clinic 50 per cent. of antenatal deaths result from syphilis, and this disease undoubtedly plays an important part in the death-rate of early postnatal life.

FEEDING

It is also true that a large mortality results directly or indirectly from the improper feeding of the new-born. While for lack of something better, artificial food mixtures must be used in a certain percentage of cases, it is universally acknowledged that breast-fed infants are better qualified to carry on existence and resist disease than those brought up on the bottle. The investigations of Tugendreich in this connection are of interest. This observer found that of 388 breast-fed babies in 64 families there was a mortality of only 19.8 per cent., while in 229 bottle-fed infants the death-rate rose to 43.3 per cent., a strong and unanswerable argument in favor of a fast-declining custom, maternal suckling.

INFECTIONS OF THE NEW-BORN

Nearly, if not quite all, of the infectious diseases of the new-born are preventable, the germ being introduced, as a rule, during or immediately following labor. Morse is of the opinion that the wiping out of the child's mouth by dirty fingers or contaminated cloths is a prolific source of evil. Twenty-seven years ago,[1] I called the attention of American obstetricians for the first time to a disease of great importance and danger, ophthalmia neonatorum, and urged its prophylactic treatment by the nitrate of silver method, just then worked out by Professor Credé of Leipsic. Two years later I again took up the subject,[2] but both of these articles apparently fell on barren ground, for, excepting the splendid work of Garrigues at the New York Maternity Hospital, little attention was given to the subject until more than twenty years later. The profession is now alive to the gravity of the condition, interest having been created principally through the efforts of the

1. Am. Jour. Obst., October, 1883.
2. Boston Med. and Surg. Jour., Aug. 13, 1885.

New York Association for the Blind and its special committees. When it is considered that one-quarter of the blind children in the schools for the blind of this country have been unnecessarily deprived of sight, the seriousness of the matter becomes apparent. Physicians, and particularly midwives, are responsible for loss of sight from this cause, and it is a matter of shame and opprobium to the profession that a single individual should be doomed to lifelong darkness when at the expense of a little trouble and the employment of so simple a preventive this might be absolutely prevented.

CONCLUSIONS

In the foregoing remarks I have attempted to indicate a few of the many conditions in which obstetrics plays an important rôle in preventive medicine. Surely, as "the child is father to the man," and woman the "treasury of the continued race," no pains which may be taken to preserve each in normality and health should be accounted too great.

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ABSTRACT OF DISCUSSION

DR. HENRY B. HEMENWAY, Evanston, Ill.: We well know that a large share of the diseases, particularly of the nervous system, are due primarily to heredity. For example, in London, speaking roughly, a large share of the mental defects, including epilepsy, and the ordinary neuroses, are traceable to the use of alcohol in the preceding generation. In Switzerland it is found that a large proportion of the children in institutions for the imbeciles and epileptics are begotten at a time when their parents are probably under the influence of intoxicants. During my practice I had a case of acephalus, the ante-partum history of which was as follows: During the third or fourth month of pregnancy the mother of the child attempted to stop a cow which was getting out of the barn, and was struck on the abdomen. I observed the case closely and I have no doubt but that the blow there caused hydrocephalus. Supposing that I had to deal with a very large amnion, I ruptured the membrane. When the child was born, I found that evidently I had mistaken the head itself for the membrane, and that the acephalic condition was the result of that injury.

When Dr. Manton first put forth his idea of ophthalmia neonatorum, some of us thought that perhaps he was a little bit visionary; but I think that facts have demonstrated that he was far-sighted. The danger of spreading the various infections through carelessness in the attendance on cases of confinement is illustrated by one instance which I remember. A physician attended a case of erysipelas, and went thence to three successive confinements and every one of those women died from what was familiarly called puerperal fever.

DR. P. M. TOWNSEND, Marshalltown, Ia.: We know that if the bone salts in the blood of the mother are ample and abundant, the bones of the child are well-nourished; but if for any reason there is a lessening of the bone salts in the blood of the mother, the bones of the child will be softer. The food of the mother before it becomes nerve tissue or muscle tissue, goes through a variety of processes, and is built up into more or less complex substances. The blood-supply of the child and the blood-supply of the mother presumably have the same composition in elemental food-supplies; the child's different tissues would therefore receive the same proportionate supply of food-elements; in that manner possibly those brain functions in the child would be best nourished which correspond with the brain functions active in the mother and therefore calling for a food-supply and influential in having the mother's blood contain a large proportion of such food-supplies as these activities require. The blood of the musician would be well supplied with such food elements as would nourish nerve tissue, whereas the blood of the woman whose time was taken up almost solely with washing would be well supplied with such food-elements as supply muscle tissue and we would expect from the child in the latter case a more thorough muscular development, but in the former case a better endowment of the nervous system.

We should educate for parentage as for any other social functions of the human being.

DR. C. W. STILES, Washington, D. C.: The relation between obstetrics and preventive medicine is a tremendously important matter in rural districts. In rural districts where I have been working in connection with other matters, it is the exception that the women in confinement see a physician; and I think that we can not infrequently trace back to the period of confinement the conditions that we find among some of our country children, and the later conditions in life of many of the farm mothers.

DR. ALLEN W. FREEMAN, Richmond, Virginia: I suppose our experience in Virginia has been that of all other health departments on this subject. We have walked around and around it, looking at it, realizing its importance, but not feeling quite like attacking it; but I think it is time for somebody with Dr Hurty's nerve to open up operations. There is no doubt that tens of thousands of women are being absolutely murdered by ignorant midwives. Every one who has ever practiced obstetrics knows how filthy and dirty, how officious and meddlesome these women are; and we know what a tremendous total of fatal and crippling illness they cause every year. If we try to get rid of the midwife, the public takes the attitude that we are trying to get a little more money for the average practitioner and do the poor working woman out of her $3 or $5 fee; but we should not let that keep us back: we must tell the people how many women these midwives are killing, and how much illness they are causing. I don't think people want to run the risk of being infected or killed by midwives; they run the risk because they don't know. The obstetrician and the health officers are the only people who apparently do know; and if we are going to be true to our duty, we must bring this information to them.

DR. C. HAMPSON JONES, Baltimore: The midwife question is one in which we of Baltimore and Maryland have been much interested for many years; and I am glad to say that at a meeting of the last legislature we succeeded finally in passing a law which will enable us to improve the situation a great deal. For many sessions of the legislature, bills had been introduced which met defeat regularly; and only by the greatest care in drawing up this last bill, so as, while being effective, yet not too strongly to antagonize the interests of the midwives, did we succeed in getting the bill through.

Some years ago I wrote a short paper reciting cases of tetanus neonatorum; I think there were 32 cases occurring in one year; and out of those, but 28 were in children under 20 days old. Among those twenty-eight cases, twelve cases occurred in the practice of one midwife; and on examination it was found to be undoubtedly due to the filthy condition of the woman's hands in treating the cord of the child. One very distressing case of tetanus was produced in the mother.

Midwives undoubtedly cannot be abolished, and I don't know that it is at all desirable to abolish them, because they attend cases which physicians do not want to attend, and in which trained nurses can not be employed. The institution being a necessity, therefore, we should undoubtedly regulate it legally. The number of cases that would be treated by midwives can be considerably lessened, I believe, if special care is taken by the managers or superintendents of maternity hospitals to separate carefully pregnant women who are married from those who are not married; the fact that a woman is poor does not mean that she is blind to the association with a woman who is not of the same character.

DR. WALTER P. MANTON, Detroit: For a good many years I have been chairman of a committee on the examination of midwives, in the Detroit Board of Health, and have come into contact with a great many of these people. We have no particular laws, and are practically helpless, but we are hoping to get a law through the next legislature governing the matter.

IDIOCY AND HEREDITARY SYPHILIS

STUDY OF 204 CASES WITH THE SERUM DIAGNOSIS TEST*

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[BLOOD TESTS BY DR. NOGUCHI, ROCKEFELLER INSTITUTE]

The present study was undertaken to obtain positive knowledge of the proportionate relationship between syphilis in the progenitor and idiocy in the offspring. Wassermann and Plaut[1] first demonstrated by the serum reaction test the connection between syphilis and some of the psychoses, while Stertz[2] showed further by the same method that inherited as well as acquired syphilis can produce disorders of the nervous system. It has long been recognized that syphilis plays an important rôle in the causation of idiocy and the arrest of brain development. The exact percentage, however, could not be ascertained, until the application of the phenomenon of complement fixation made it possible, since which definite positive serum reactions have been found in idiocy, imbecility, epilepsy, dementia præcox, and nearly all cases of general paresis; while the utilization of the test is of daily occurrence in all diseases, of whatever nature, in which syphilis is suspected; and the test is found to be a very trustworthy one for syphilis when made under certain conditions.

Among idiots we are quite unable, from signs, symptoms or history alone, to gain the slightest clue, in most cases, as to the presence of syphilis. Statistics, therefore, obtained from such data are unsatisfactory and more or less unreliable. In German clinics percentages have ranged from 11 to 23 per cent.; in other miscellaneous clinics, including English figures, from 0 to 2 per cent. Figures on the frequency of congenital syphilis in general are fragmentary. Power and Murphy[3] state that in 4,830 out-patient children under 10 years, seen at the King's College Hospital, there were but 29 cases of undoubted syphilis, or 0.6 per cent.; and if suspicious cases were included in this estimate the percentage would be brought up to only 1.5 per cent. That these figures give no idea of the actual frequency of congenital syphilis appears from statistics of foundling hospitals, which show the high mortality of the disease in early life. Thus at an institution at Moscow it was recorded, about 1870, that of 2,038 syphilitic children 75 per cent. died within the first six months of life; while of actual syphilitic births over 80 per cent. are still-births, according to Hyde of Chicago, and the great number of syphilitic abortions is well known.

Lippmann[4] of Munich is the only one so far who has published a definite number of serum tests in idiots, though Raviart, Breton and Petit examined a few cases for this reaction in the blood. Lippmann applied the test to 78 juvenile idiots at Uchtspringer and got a positive reaction in seven, or 9 per cent. of the cases. These figures give a much lower percentage than that found clinically by Heubner and Ziehen, but notably higher than the 2 per cent. of certain other men. He next tested the material at Dolldorf and found 13.2 per cent. positive.

It has been settled that in persistent hereditary syphilis the reaction may disappear in time and that it is modified by treatment. Lippmann therefore investigated, for clinical evidences of syphilis, the material which had not given a positive reaction, and claimed from this, and historic evidence, a final percentage of 33.8 per cent. This seemed to me such a high percentage in comparison with what all other clinical evidence had shown that an independent inquiry into the whole subject was deemed worth while, especially as such an inquiry was calculated to throw light on the etiology of the disease.

Specimens of blood, about 2 c.c. in each case, were obtained from 204 idiots of low grade, in my service at the New York City Children's Hospital and Schools, Randall's Island. The Wassermann-Noguchi[5] test as made at the Rockefeller Institute by Dr. Noguchi[6] or under his direction. The 204 idiots selected were all of low grade. Eighty-eight of them were girls and 116 boys. A rough classification of the cases is shown in the following list:

CLASSIFICATION OF THE 204 LOW-GRADE IDIOTS TESTED

Idiopathic idiots	120
Diplegics	47
Hemiplegics	7
Epileptics without paralysis	13
Hydrocephalics	5
Microcephalics	6
Cretins	2
Myxedematous	1
Amaurotic family idiocy	1
Idiocy with cerebellar ataxia	2

Several (4) of the patients were blind, and several (4) mute. There were other physical disorders, not syphilitic, in other cases.

AGES OF THE 204 PATIENTS TESTED

Under 5 years of age	13
Between 5 and 10 years of age	34
Between 10 and 15 years of age	62
Between 15 and 20 years of age	31
Between 20 and 30 years of age	25
Between 30 and 40 years of age	22
Between 40 and 50 years of age	9
Over 50 years of age	1
Unascertained (adult)	7

It will be seen from this list that 140, or over two-thirds of the aggregate, were under 20 years of age.

Positive tests were obtained in 30 of the total 204 cases, or 14.7 per cent. Of these patients, 20 were females, being 22.7 per cent. of the 88 females examined, and only 10 were males, being 8 per cent. of the 116 males examined.

All of the positive seroreactions were in idiots under 40 years of age, divided as follows:

AGES OF THE 30 IDIOTS WITH POSITIVE SEROREACTION

Under 5 years of age	1
Between 5 and 10 years of age	7
Between 10 and 15 years of age	7
Between 15 and 20 years of age	6
Between 20 and 30 years of age	6
Between 30 and 40 years of age	3

It is interesting to note that the reaction had not disappeared even at so late a period as the ages of 34, 35 and 37 in three positive cases; also, that stigmata of syphilis appeared in only four of the total thirty cases with positive serum reaction.

* Read before the New York Neurological Society, May 10, 1910.

1. Wassermann and Plaut: Ueber das Vorhandensein syphilitischer Antisoffe in der Cerebrospinalflüssigkeit von Paralytikern, Deutsch. med. Wchnschr., 1906, xxxii, 1769.

2. Stertz: Die Serumdiagnostik in der Psychiatrie und Neurologie, Allg. Ztschr. f. Psychiat. u. Med., 1908, lxv, 565.

3. Power and Murphy: System of Syphilis, 1908, I, 291.

4. Lippmann, H. von: Ueber den Zusammenhang von Idiotie und Syphilis, München. med. Wchnschr., Nov. 23, 1909

5. Noguchi, Hideyo: Serum Diagnosis of Syphilis, J. B. Lippincott Company, 1910.

6. I am under great obligations to Dr. Noguchi and his assistant for the laboratory work.

CLASSIFICATION OF THE 30 IDIOTS WHO SHOWED A POSITIVE SEROREACTION, WITH PERCENTAGES OF EACH FORM

	Positive.	Total.	Percentage.
Idiopathic	13	120	10
Diplegics	11	47	23
Hemiplegics	2	7	28
Microcephalics	1	5	20
Epileptic without paralysis	1	12	8
Cerebellar ataxics	2	2	100

Still further analyzed, one of the diplegics with positive reaction was epileptic, one hydrocephalic, and one epileptic with mutism. One of the cerebellar ataxic patients was microcephalic, and one of the diplegics was blind. One out of four deaf-mutes showed a positive seroreaction. The myxedematous idiot, the two cretins, and the patient with amaurotic family idiocy showed negative reactions.

The percentage of positive reactions found was much greater, in proportion, in idiots with superadded gross organic brain defect than that found in idiopathic idiocy.

The great frequency with which a positive reaction was found in diplegics (over 23 per cent.) would seem to warrant one in believing that there are other causative lesions to be sought for in these cases than those which result simply from trauma or asphyxia; causative lesions, due to syphilis, such as for example an imperfect development of the vascular system. The subject is worthy of careful study and investigation. At any rate, 14.7 is certainly a sufficiently high percentage of positive cases to warrant the suggestion that every case of idiocy should have a serodiagnosis test to ascertain whether syphilis is a factor in its etiology; and something might also be accomplished, in the way of prophylaxis, as suggested by Lippmann, by applying the test to pregnant women in the lying-in and gynecologic hospitals. The importance of this suggestion is enhanced by the statement of Baisch that in women three-fourths of the cases of syphilis are latent. In other words, Baisch obtained positive seroreactions in women three-fourths of whom presented no clinical evidence whatever of syphilis. Aside from the opportunity of treating the mother, an inunction cure of the infant after birth, is often attended by striking success. Many cases of marked improvement are on record in which the mercurial treatment of mental defectives was employed. The indiscriminate specific treatment of all cases of idiocy, as in some cases of the clinics abroad, without a careful preliminary blood test in each case, can scarcely be recommended, as the use of mercury or of the iodids, when not directed with a definite purpose, is capable of considerable harm on account of conditions of malnutrition in the little patients.

I shall undertake further studies relative to treatment, and to the frequency of hereditary syphilis as an etiological factor in imbecility and feeble-mindedness.

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Yeast in Treatment of Vulvar Pruritus in Diabetics.—P. Carnot describes in the *Progrés Médical*, 1910, xxxvii, 307, his success in curing chronic vulvar pruritus in diabetics. Besides general and dietetic measures, hot local applications and the *x*-rays, he found that the best results were obtained by preventing prolonged contact of the glycosuric urine with the irritated parts. This he accomplished by lotions and vaginal injections of brewer's yeast, a tablespoonful of fresh yeast in a quart of water. In a recent rebellious case the yeast applications alone, twice a day, put an end to the pruritus remarkable for its intensity and tenacity. He recommends this yeast treatment for various forms of diabetic disturbances; the yeast removes the residual sugar in the urine by fermentation, replacing it with a weak and tonic alcohol solution.

THE ROLE OF OTOLOGY AND RHINOLOGY IN PREVENTIVE MEDICINE*

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The otologists and rhinologists of this country have, I believe, a decided opinion that the ear, nose and throat have a rôle in the etiology of many general diseases, contributing directly in certain diseases and indirectly in others. Specific citations will be offered in the discussion of this important subject.

FUNCTION AND PATHOLOGY OF THE NOSE

The nose is both a respiratory and an olfactory organ. As a respiratory organ it prepares the air for the lungs, filters it, warms and moistens it. The normal mucus secreted from the nose, in addition to furnishing moisture for the inspired air, is a factor in digestion. It is especially true that gastro-intestinal disorders are not uncommon in very young children suffering from diseases of the upper air passages, and are due to putrefactive changes from the action of bacteria on the intestinal mucosa rather than on food particles.

Nasal stenosis produces a distinct reversal of Nature's method of respiration, that is, mouth-breathing, which when once forced on the individual, predisposes to general lowering of the resistance of the body, mental apathy, destruction of the blood cells, and diseases of the lungs. Individuals with obstructed nasal passages working in a dust-laden atmosphere are more prone to the various forms of pneumonoconiosis than are those with normal noses.

Olfaction is an important physiologic function of the nose, directly influencing the sense of taste, both of which govern the ingestion of suitable foods for the maintenance of the body. Alteration in the sense of smell may directly affect the general nervous system or *vice versa*. The sense of smell is essential in certain occupations, and many industrial diseases, such as alcoholism, dementia præcox in musk workers, insanity, etc., are due to these occupations.

Hypersensitive points in the mucosa of the nose as etiologic factors in hay-fever and asthma are too well known to require other than passing notice. According to Professor Killian, these points are the anterior end of the inferior turbinate, the front part of the septum, the lateral wall of the nose, above the anterior end of the middle turbinate, and the upper end of the septum about the tubercle. The cure or relief of such irritation is in cauterization of these points with the actual cautery or trichloracetic acid. There is a form of nasal turgescence, vasomotor in character, simulating hyperesthetic rhinitis, which is dependent on a neurotic temperament, which in turn is irritated by exhausting mental work, sexual excitement, alcoholic indulgence and gastro-intestinal disorders.

The influence of acute or chronic suppuration of the nasal sinuses is especially far-reaching. There is an intimate venous anastomosis between the roof of the sinuses of the nose and the meninges and brain, sometimes producing meningitis, thrombophlebitis and intradural abscess, and predisposing to mental apathy, ocular and aural affections, bronchial and gastro-intestinal disorders. Sometimes, in a chronic suppuration of

* Read in the Section on Preventive Medicine and Public Health of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

the sinuses, a dehiscence may exist in the roof of the sinus which permits the direct extension of infection to the meninges and brain. The effect of inhalation of foul odors, often observed in patients suffering from a chronic suppuration of the sinuses, is certainly irritating to the lungs and nervous system. In these cases there is a low form of auto-intoxication present all the time.

The early local treatment of acute suppuration of any of the sinuses consists in the reduction of the swollen mucous membrane and establishment of free drainage, both of which are very essential. The early surgical interference in all chronic suppuration in the nose is most important. By such interference ozena, atrophic rhinitis, systemic disorders, and diseases of the lower air-passages are prevented.

Catarrhal inflammation of the skin, vasomotor erythemata, and angioneurotic edema may accompany, or alternate with, an acute inflammation of the nasal mucosa.

Leprosy, lupus erythematosus, lupus vulgaris, tuberculosis, rhinoscleroma and anthrax have a predilection for primary origin in the nose.

"Many of the infectious diseases, such as scarlet fever, smallpox, measles, diptheria, pneumonia, grip, meningitis, typhoid fever—due to infected dust—plague from an abrasion of the skin or mucous membrane and infection with the *Bacillus pestis* of Kitasato, and gastro-intestinal disorders, have their origin and atria of infection in the nose and nasopharynx. The nose of a healthy individual may possibly be a carrier of infectious diseases. This infection is more often carried through the air from the nose and throat of one individual to another than by the skin, and by hygienic measures could probably be prevented from securing a new foothold. We know that it is a matter of daily observation that many of the so-called catarrhal fevers respond much more rapidly when attention is given to frequently cleansing the nose and throat with mild alkaline douches and sprays. In scarlet fever and measles many of the severe angiotic and aural symptoms are likewise mitigated."[1]

The prevention of many of the diseases enumerated depends on the application of the rules of hygiene, that is, frequent cleansing of the nose with mild antiseptic and alkaline solutions, free nasal drainage, and good general hygienic surroundings. It is, I think, quite true that both measles and scarlet fever are carried from the nose and throat of an infected individual. The condition of the nose and throat should govern the time of the isolation of the patient, rather than the appearance of the skin, and authors go so far as to express the belief that the skin lesion in scarlet fever is a sequence of the toxemia, which has its origin in the nose and throat. The many cases observed lead me to say the same thing of measles.

The fact that the nose (also the throat) is a carrier of the bacillus of diphtheria is well known. Unfortunately, no cleansing agent is known which possesses sufficient potentiality, in the strength endured by the nose, to destroy the organism. In the discussion of this subject, a very important point to remember is that a latent infection of the nose with the bacillus of diphtheria requires additional infection from a new organism to start an active inflammation. Therefore it is advisable to isolate for a short time cases of simple sore throat, especially in children.

1. Kyle: The Social, Hygienic and Economic Aspect of the Nose, Laryngoscope, January, 1910.

FUNCTION AND PATHOLOGY OF THE TONSILS

The function of the faucial tonsils and of adenoid tissue which is found in the vault of the pharynx in most children at birth, is as yet imperfectly understood. That the tonsils sometimes allow bacteria to enter the tonsillar epithelium and lymphatic channels of the neck and also that they sometimes prevent the entrance of bacteria into the lymphatic channels, are undisputed facts. It may be that in a healthy tonsil bacteriolysins and antibodies are produced in sufficient quantities to neutralize any bacteria or bacterial products which may penetrate the crypts or surface epithelium, thus preventing constitutional infection. In many cases some local or general condition may so irritate the tonsils as to allow infection to enter the epithelium or lymph-stream, producing local or general symptoms. There is a direct connection between the cervical lymphatics and the tonsils, and it is probably by this avenue that general infection spreads from the tonsils through the body, supplemented sometimes by the blood stream. It is observed that hypertrophied cervical lymphatic glands have a tendency in most cases to disappear on the removal of the tonsils in their capsule. *The size of the tonsils has nothing to do with cervical adenitis and general infection.* A small cryptic tonsil of a degenerative type is usually more productive of adenitis and general infection than large pedunculated tonsils, whose greatest harm is interference with normal respiration.

THE TONSILS AND TUBERCULOSIS

The question of the relation of the tonsils to tuberculosis is very important and the great majority of laryngologists believe that a relation exists. It is a reasonable presumption that the bacillus of tuberculosis may be found in the epithelium or in the crypts of the tonsils in a majority of cases of pulmonary tuberculosis. This, however, argues nothing. When we find evidence of tubercle bacilli in the tonsils, and swollen cervical glands, tuberculous in character, without observable lung involvement, the evidence is quite conclusive that the tonsil is the portal of infection. It is the opinion of Jonathan Wright, who is probably the greatest authority among laryngologists in this country, that "tuberculous cervical glands at the angle of the jaw are almost always secondary to primary tuberculosis of the tonsil." (G. L. Richards.)

From personal experience I do know that not infrequently patients have come under my observation suffering from the general symptoms of incipient tuberculosis, that is, loss of flesh, general apathy and elevated temperature, in whom the tubercle bacilli were found in the cheesy deposits of the tonsils, and immediately after complete removal of the tonsils in their capsule, all the symptoms disappeared, with speedy restoration of the individual to health. I have also observed marked benefit to follow the removal of tonsils in cases of pulmonary tuberculosis in the early stage, in which tubercle bacilli were easily demonstrated in the sputum. Some patients apparently recovered. These patients gave a history of recurrent attacks of tonsillitis or irritation in the tonsillar region.

The direct connection of the cervical glands with the apices of the lungs makes it comparatively easy for the tubercle bacilli to seek the point of least resistance, which is the apex of the lung in many cases.

In those cases of apparent localized tuberculosis of the larynx, the removal of hypertrophied or ragged tonsils, which usually accompany such a condition, is marked by a cessation of many of the local symptoms.

A diseased tonsil, that is, one which is subject to recurrent attacks of tonsillitis, or in which the crypts contain bacteria, adds to an already existing pulmonary tuberculous infection sufficient new bacterial poisons to stimulate inflammation or to flame into activity a slumbering localized ulceration in the lungs. It therefore seems reasonable to me that in all suspected cases of pulmonary tuberculosis the tonsils should be inspected, and if possessing the slightest evidence of possible irritation, should be removed in their capsules. I think it is fair to say that simple tonsillotomy in such cases is an obsolete operation. The crypts of the tonsils extend to, or very near, the capsule, and a partial removal of the tonsil will do no good. The tonsils must be completely removed, thus sealing up the lymph-ducts which have their beginnings in the capsule or gland proper.

THE TONSILS IN RHEUMATISM

The rôle of the tonsils in the etiology of acute articular rheumatism has many advocates among laryngologists, and the majority, I believe, recognize a close relationship between acute tonsillitis and rheumatism. I have observed a number of cases of acute tonsillitis, follicular in character, which were followed by acute or subacute articular rheumatism. A few weeks ago I removed the tonsils of a young man who had suffered from six attacks of acute articular rheumatism, each following an attack of tonsillitis. It is, of course, too early to prognosticate the possibility of a return of rheumatism in this case. Other observers have reported an improvement in the rheumatic condition, acute or subacute, after the removal of the tonsils, very suggestive proof that the tonsils in a great many cases are an etiologic factor in acute rheumatism.

TONSILS IN OTHER AFFECTIONS

Many conditions such as endocarditis, meningitis, nephritis and appendicitis are reported as probably originating from a disease of the tonsils in certain specific cases. Such reports are not especially valuable, however, as the infection of the tonsils and the other organs at the same time or at a short interval, may have been only coincident. I believe, however, that there is good reason to suspect the tonsils, provided the diseases as cited above, follow in the wake of acute suppuration in the tonsils. The character of the infection in the tonsil evidently plays an important rôle in causing the spread of the disease and metastatic foci may be anticipated in cases of streptococcic infection.

PREVENTIVE MEASURES

Since the tonsils are a possible menace to the general economy, it would be better, I think, to remove at the earliest possible time those tonsils which are hypertrophied whenever observed in young children to produce mouth breathing, and if the cervical glands are enlarged even small tonsils should be removed. In young and old that form of tonsil known as degenerative, in which the crypts are filled with a cheesy deposit and are subject to recurrent attacks of irritation, should be removed.

ADENOIDS

Adenoid tissue in the vault of the pharynx plays a part in causing cervical adenitis, though not so important as diseased tonsils. Acute inflammation of adenoid tissue occurs more often in young children. Adenoid glands sometimes have within their folds a cheesy deposit resembling that which is often observed in the tonsils. The drainage from adenoid tissue is much better than that from the tonsils and in consequence, inflammation of an active type is less frequently observed than in the tonsil. Inflammation and hypertrophy of the tissue in the vault of the pharynx predisposes to recurrent attacks of postnasal infection, deformities of the face, mouth breathing, deafness, Balnes' cough or nocturnal cough, infectious diseases, and, as pointed out by Ponthiere, Sydenham's chorea.

Bronchoscopy has opened up a new field for the better understanding of diseases of the trachea and bronchi. Some obstinate cases of asthma, which have defied all forms of treatment, have been reported as entirely relieved by application direct to the mucous lining of the bronchi. In addition, tumors of the trachea are sometimes treated as bronchial asthma, and a diagnosis can be established only by this method of examination. The presence of cicatricial bands in the bronchus, with partial or complete consolidation of the lungs, can by this method be established and thus empirical treatment of the lungs be prevented.

THE EAR IN GENERAL DISEASES

The rôle of the ear in general diseases is well established. A progressive deafness with or without tinnitus, is especially important as an etiologic factor in general nervous exhaustion and many functional nervous disorders. Dr. Clarence Blake,[1] the dean of otologists in this country, says in regard to this subject:

> Few intelligent observers outside of the very deaf themselves, or those who have to deal much with persons so afflicted, can appreciate the profound exhaustion resulting from the effort to compensate for a deficiency in this particular line of communication with the outer world, in the person whose perception of that mode of motion to which we give the name of sound was once made without appreciable effort, and who has, under conditions of impaired hearing, first of all, to make an effort to hear, and, in default of hearing, an effort to appreciate vocal utterance by watching the motion of the lips of the speaker; and finally, in default, either through lack of perceptive power or through ability only to catch consonant sounds which are formed in front of the mouth, to solve the puzzle of the spoken sentence by filling in the missing consonant sounds, or, inadequately seen, from the appreciable context of the sentence; so that where once understanding came without effort, three distinct and appreciable brain-efforts are required: first, to hear; the second, to see; and the third, to understand.

In arteriosclerosis, the ear symptoms are sometimes the first to call the attention of the observer to this insidious and intractable disease.[2]

> "The ear symptoms which should direct our attention to a local or general circulatory disturbance, are unilateral or bilateral tinnitus, slight and progressive deafness, loss of air and bone conduction, dizziness, sometimes early in the disease, and in the later stages of the disease, sometimes hallucinations of hearing. The ear symptoms necessarily vary according to the extent of the sclerosis."

Another symptom belonging to the internal ear which is important in many diseases, is vertigo. Vertigo may or may not be associated with nystagmus, and may be continuous or alternating in character. If alternating, it may be said to be due to an explosion, as it were, in the center of equilibration situated in the cerebellum or semicircular canals, and is probably functional in character, and due to circulatory disturbances or gastro-intestinal disorders. If continuous, it is probably due to a destructive change in the center of equili-

2. Kyle, J. J.: A Study of Ear Symptoms in Arteriosclerosis with Special Reference to the Labyrinth, Annals of Otol., Rhinol. and Laryngol., June, 1907.

bration or semicircular canals, which may result from a tumor or suppuration. Impressions producing functional vertigo travel to Deiters' nucleus by the spinal vestibule tract, the cortical vestibule tract or associated fibers of the cranial nerves.

Vasomotor ataxia, local in character, may occur about the auricle and adjacent structures from irritation of the different ganglia of the ear, causing hives, herpes, simple erythemata and sometimes angioneurotic edema, and we must be careful not to class such skin conditions as the local expression of a mastoiditis.

A suppurating ear as a cause of metastatic abscess in the brain, lungs, or liver is so well known that I need not dwell on this feature of the subject further than to remark that too often a general septic thrombophlebitis is attributed to some general infection rather than to a condition originating in a suppurating ear, which is only taken into consideration after the disease is well established and beyond surgical interference. A chronic suppuration of the ear is certainly a menace to life, and any rise of temperature or slight pain in the region of the ear affected should, in the absence of a distinct cause, be looked on with grave suspicion as orginating from the ear.

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ABSTRACT OF DISCUSSION

DR. ROBERT LEVY, Denver: Frequent examinations of the ear during cases of scarlet fever, measles, etc., should be a routine measure; and one often is rewarded, after such an examination, by detecting a redness or a bulging of the membrana tympani that indicates the otitic involvement. Early relief by a free incision will often prevent a permanent discharge from the ear and a consequent deafness through the rest of this patient's life, not to speak of complications such as mastoiditis, etc., which we all recognize as a consequence.

I would also like to impress, perhaps emphasize, what Dr. Kyle has said with regard to the size of the tonsil as indicative of disease of this organ. The most dangerous tonsils to the welfare of the patient are those that are submerged; those that are not prominent and that can only be examined thoroughly by drawing forward with a retractor the anterior pillar!

Now, as to the finding of tubercle bacilli and tuberculosis in tonsils with cheesy discharge, my experience has not been in accord with Dr. Kyle's. It has been my experience that the demonstration of tubercle bacilli in tonsils and in these various discharges from the tonsils is an extremely difficult matter. I mean difficult, not from a technical point of view, but from the fact that they do not exist there; and even if they do exist, tubercle bacilli found in the crypts of the tonsils are not evidence of tuberculosis. They are there simply as they are in the nose; and we know that in the vestibule of the nose one finds not only tubercle bacilli, but other micro-organisms after contact with patients having the specific diseases. After your visit through a ward of diphtheria; after your presence in a tuberculosis hospital for any length of time or after treating many throats, you can demonstrate the presence of micro-organisms that are entirely inert so far as you are concerned; and so one must be careful how one defines tuberculosis of the tonsils in cases in which tubercle bacilli are demonstrated; at the same time, it is a fact that there may be histologic changes, the tonsils indicating the development of tuberculosis without being able to demonstrate the presence of the tubercle bacilli.

With regard to the removal of tonsils in its relation to the development, or to the recurrence, of rheumatism, I might say that occasionally one finds that immediately after enucleation of the tonsils a very severe attack of acute rheumatism develops. I have seen such instances; and I have also seen the development of a very intense chorea immediately after the removal of tonsils. In one instance the patient's rheumatism was followed by an endocarditis and a permanent heart lesion. In all of these instances, the operation was blamed for the result. I was the operator, and I have not to this day been able to assure these people that the operation was not directly the cause; but as a matter of fact, the operation did have a bearing. I believe that acute tonsillitis is a local manifestation of an infective micro-organism, which micro-organism is also the cause of rheumatism; and that the tonsils acting as portals of infection for this micro-organism, retaining this micro-organism in its passage into the cervical lymphatics, and then into the system generally, such tonsils take on an initial inflammatory condition which we term acute tonsillitis. And so, if a tonsil is infiltrated, as it were, with micro-organisms causing specific infection such as rheumatism or chorea, the attack on that tonsil by an operation brings about an intense virulence of the micro-organism, followed by absorption of the micro-organism and the resulting general rheumatism, chorea, or endocarditis.

DR. H. W. HILL, Minneapolis: I hear the term "vicious tonsils." I should like to know if there are any tonsils that are not vicious. I am constantly asked that question: Should not a child's tonsils be removed in any case?

DR. J. J. KYLE, Indianapolis: As to the question whether or not, or when, the tonsil shall be removed, especially in young children, I should say if a tonsil is hypertrophied and obstructive to breathing I would recommend its removal. In the young child suffering from cervical adenitis and inanition, I would recommend the removal of the tonsils. In the young child with simple hypertrophy of the tonsils without any obstruction to breathing and without any enlargement of the cervical lymphatics, I would leave the tonsils alone. A tonsil may possess some function that we do not quite understand; and with the presumption that it has a function, I can not see the excuse for always removing it.

NASAL DIPHTHERIA*

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Malignant diphtheria is an exceedingly serious condition with which to contend and complications of a grave nature are comparatively infrequent. The introduction of antitoxin as a routine method of treatment has reduced very markedly the malignancy of this disease making the gravest cases more benign. In fact the custom of resort to antitoxin on the very first decidedly suggestive symptom of diphtheria is so universal that statistics show the frequency of this dreaded disease to be greatly minimized. The proper management of a case of diphtheria is supposed to be a knowledge possessed by every competent physician and yet there are complications not mentioned in text-books which sometimes arise which try the skill of the most experienced clinician. A case of this kind some time ago came under my observation.

CASE 1.—*History.*—On Sunday night, Oct. 8, 1905, I was called by telephone to a near-by town, with instructions to come prepared to operate on a tonsillar abscess. I arrived about 11 p. m. and was met by the physician in charge who gave me the following history. The patient, a boy 9 years old, on returning from Atlanta two weeks before, had been taken sick with an attack of tonsillitis. Both tonsils were involved, but the left became abscessed, broke and discharged a very foul pus. This continued intermittently as the throat became better, and the patient seemed to be gradually improving. On the morning previous (Saturday) the patient began to have stridulous breathing in the larynx, which continued with increased severity. The temperature at no time had been higher than 102. He had suffered with two hemorrhages from the

* Read in the Section on Laryngology and Otology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

nose, the last one having occurred the night previous and was checked with great difficulty. Nourishment had been taken throughout the sickness.

Examination.—The patient was lying asleep on the bed but could be aroused without difficulty. The breathing was entirely through the mouth and seemingly unobstructed as an examination showed the air to be passing freely into the lungs. The lips were dry and clotted blood could be seen at the nasal orifices. The face was pale and expression anxious; lids very much swollen; temperature 99 and pulse 120. With reflected light an excellent view could be obtained. On the left tonsil there was a large greenish-yellow patch, gangrenous-looking and bleeding on the slightest touch. The same but less in extent was on the right tonsil, the pharynx, and extending into the nasopharynx. The nasal cavities showed the same character of the membrane at that point. The larynx was very little affected. The odor was exceedingly foul and offensive. The submaxillary glands were enlarged. Auscultation showed that air was passing freely into the lungs. The child was evidently saturated with poison, as manifested by every appearance.

Course of Disease.—Diphtheria had not been suspected until that morning when 2000 units of antitoxin were given. The system showed clearly a case of gangrenous diphtheria and the only question was, whether the body had sufficient strength to throw off the poison which was already overwhelming the system. Five thousand units of antitoxin were immediately given, injections of strychnin and the swabbing of the throat with hydrogen peroxid were also continued. The patient's pulse was strong but of high tension. He slept at intervals. About 3 a. m. the nurse called me from an adjoining room on account of a severe nasal hemorrhage. With cotton plugs, epinephrin solution and other adjuvants the hemorrhage was finally checked after one hour's work. The patient was becoming very weak and at times seemed to gasp for air. The laryngeal breathing becoming decidedly obstructed, I intubated, which immediately brought temporary relief, but only for a moment, as the nose again began to bleed both anteriorly and posteriorly so freely that the blood went into the larynx before we suspected what was happening, filling up the intubation tube and cutting off the air. Before I could get instruments for tracheotomy and while I was keeping the child's head down, the patient died.

This proved to me an exceedingly interesting although unfortunate case in that such complications as severe and almost uncontrollable epistaxis could not be found mentioned in text-books and other writings at my command. Experience is sometimes a valuable although a sad teacher, and should I ever be so unfortunate as to be called in a similar case, a different management would most assuredly be adopted. In the first place, although I recognized that the patient was extremely septic and probably would have died even had not the complications arisen, still I did not realize then the gravity of such a symptom as severe epistaxis, which in the end was the real cause of death. When one realizes that the nasal mucous membrane is covered by a gangrenous deposit, which when dislodged will leave a surface from which it is exceedingly hard to check the hemorrhage, then one will realize that a bleeding from the whole surface is an exceedingly grave complication with which to contend. Every plug introduced into the nasal cavity only makes the bleeding worse, for the very force of its introduction uncovers a new surface and a new point for hemorrhage. Besides the nasal cavities and the nasopharynx in cases such as the one described are filled with the membranous exudate which in itself will almost occlude these cavities. Epenephrin solutions must remain as the surest and best remedy in these cases. The proper course to pursue would have been to perform tracheotomy just as soon as the case was seen and the true nature of the pathologic condition was recognized, especially since there was a history of a severe epistaxis on the day previous. Only in this way could we have been in a position to manage a severe hemorrhage should it occur. If necessary the mouth, nasopharynx and nasal cavities could then have been plugged and the hemorrhage have been properly managed.

Another point impressed on me by the history of the case was the fact that in all cases of diphtheria complicated by severe epistaxis, tracheotomy is preferable to intubation because if bleeding should occur posteriorly without the knowledge of the attendant and if the blood should run down into the larynx, the tube could immediately be obstructed by clotted blood.

Fortunately such extreme cases as the one here reported do not often occur and I readily believe that had the case been diagnosed earlier and antitoxin administered from the start, the outcome might have been much more satisfactory.

While we have been discussing a case of nasal diphtheria, acute in character and extending up from the nasopharnyx, I cannot refrain from mentioning those cases of nasal diphtheria which might more properly be designated as chronic in character.

During the last two winters I had under my care five cases of this condition. They occurred in children aged from 5 to 10 and presented the same characteristic features. Two of them were in brothers who had been going to public schools continuously, although the history of these cases showed the disease to have been present for weeks. Some authors speak of this condition as membranous rhinitis, and clinically this certainly seems to be an appropriate term.

The symptoms in these cases are very similar. There are practically no constitutional manifestations so far as temperature is concerned, and but for the local symptoms the little patients rarely experience any discomfort.

Helot,[1] however, has reported two cases of nasal diphtheria in one of which there were severe general symptoms; but this must be classed with those more acute in character.

One of the first symptoms noted is persistent nosebleed, and this is probably the first sign to which the parents' attention is called.

McKee[2] reports several cases of nasal diphtheria and has this to say in reference to the importance of epistaxis in the diagnosis of nasal diphtheria:

1. Staining of the nasal discharge with blood is quite commonly seen in nasal diphtheria and epistaxis of moderate severity is not unfrequently observed.

2. Nosebleed is a symptom of much diagnostic value, for it may suggest the possibility of nasal diphtheria in any case, but particularly in the dangerous (to the community) mild cases. Among causes of epistaxis, diphtheria of the nose should be accorded a separate and prominent place.

3. In malignant, mixed infection with streptococci and diphtheria bacilli (Northrop) in the nose, epistaxis may be most alarming and may be even the immediate cause of a fatal termination.

In addition to the above the child will seem to have a bad cold in the head, some mild purulent discharge from the nose and possibly enlargement of the submaxillary glands. On rhinoscopic examination one will find a distinct membranous deposit on one or both sides, which, with the attendant swelling, will almost completely block the nasal passage. At the mucocutaneous margins, crusts and abrasions will be present show-

1. Helot: Ann. d. mal. d. l'oreille et du larynx, June, 1903.
2. McKee: Therap. Gaz., March 15, 1904.

ing the irritative character of the nasal discharge. If an attempt is made to dislodge this membrane a very severe hemorrhage will frequently be produced, difficult sometimes to check if the child is obstreperous. Most such patients continue in school and, until the character of the condition is recognized, mingle with the other children without restrictions. I believe that many cases of diphtheria which have their origin in the schools come from unsuspected cases like this, allow an extension from one child to another.

On the other hand we are compelled to recognize the fact that there must be a lowered vitality, some surface alteration to afford a proper habitat for the diphtheria bacillus before individuals can be infected, otherwise the diphtheria would be much more common than at present.

Reports show that diphtheria bacilli, virulent in character, can be found in the respiratory tract of even healthy individuals and it is impossible to isolate such individuals; in reality it is not necessary to isolate from the public all well persons in infected families, etc.

Roux and Yersin of Paris, have reported an examination recently of fifty healthy children, living in a village near the coast, where diphtheria was unknown. They found the diphtheria bacilli in the secretions of the mouth in 52 per cent. of the cases.

These facts, however, should not lead to laxity in quarantine methods, for although it may be true that it requires something more than the presence of the bacilli themselves to cause diphtheria, still it is impossible to tell when some fit subject may come in contact with such cases and so aid the spread of the disease.

In the cases of Roux and Yersin the membrane was examined and the report showed the presence of the Klebs-Loeffler bacillus. In none of my cases did the membranous deposit extend to the pharynx or in fact beyond the nasal cavities, so far as could be determined and in none of the cases was it necessary to use antitoxin or even to confine the patient to bed. In other respects these patients felt perfectly well. I report here a typical case which occurred in my practice during last winter.

CASE 2.—A boy, aged 4½, was brought to my office during the month of December on account of a long-continued obstruction in the nose from cold. This had been present for three weeks and with the exception of the nasal symptoms the child appeared to be in perfectly physical condition. I found both nasal cavities covered with a whitish membrane which was difficult to remove. A culture was immediately taken which showed the presence of the true diphtheria bacillus. The mother would not believe the diagnosis, and the family physician said that he had never seen a case of nasal diphtheria without high temperature. They agreed, however, to isolate the patient and 2,000 units of antitoxin were administered; this injection was the only one given during the course of the disease, the treatment being mainly topical. Three days later a younger sister developed a case of typical pharyngeal diphtheria and had to be treated with antitoxin throughout the course of the disease.

This case but shows one of the typical forms of chronic nasal diphtheria which was virulent enough to produce a true pharyngeal diphtheria in another patient but which in itself might have run along unnoticed. I firmly believe that the cases of this chronic nasal diphtheria are much more prevalent than supposed, and I believe that cultures should be made more frequently from patients with nasal diphtheria.

The treatment of the case was tedious and rather long-continued because of the time necessary for entire removal of the membrane.

The best management was found to be as follows:

The nasal cavities were cleansed and the membrane disintegrated by using a weak solution of hydrogen dioxid. This was followed by a swabbing of the nasal cavities with a solution of silver nitrate 20 gr. to the ounce. At home nothing was used but an ointment of phenol and menthol in petrolatum, applied every night and morning.

Many rhinologists no doubt often have looked into the nasal cavities and have found adhesions between some portions of the turbinates and septum and have asked immediately whether there has not been an operation previously on that side. Many such cases no doubt are due to operations in the nose, especially ill-advised and ill-executed galvanocautery applications, but some of them are due also to this condition of chronic diphtheria or membranous rhinitis, for in one of my cases, in spite of the very best attention, an adhesion did form between the lower turbinate and septum on one side which later had to be cut.

In conclusion, allow me to say that we must recognize the multiform manifestations of diphtheria wherever there is a mucous membrane; and whenever a child continues to have a cold in the head with excoriations at the mucocutaneous surface and occasional nosebleed we must look on this condition with suspicion.

ABSTRACT OF DISCUSSION

DR. WILLIAM E. CASSELBERRY, Chicago: My experience agrees with that of the essayist in respect to the two distinct types of diphtheria of the nose which possibly may grade into each other, but the cases which I have observed were distinctly characteristic of one type or the other. The first accompanies grave systemic diphtheria, having commenced in the pharynx, extended through the nasopharynx and then involved the nose by which time the diagnosis is usually plain; but even in this class a doubt can arise between diphtheria and a scarlatinous exudate, as in the case of a physician who, having been exposed to scarlet fever, developed an exudate in the pharynx, with fever and a nasal exudate, in which, however, no Klebs-Loeffler bacilli could be found. In the treatment of a complicating epistaxis as severe as the essayist has described, I do not know anything one can do other than to pack the nostrils and if one must pack I know of nothing that I would resort to with greater confidence than the rubber finger-cot tampon filled by a packer with gauze such as I have previously described before this body.

The other type of nasal diphtheria, that in which the exudate is limited usually to a part of one nostril and without systemic illness, the essayist has observed only in children; I have observed it only in adults, which shows the difference in individual experiences. The exudate commences in the anterior part of the nostril, which indicates inoculation by the finger, particularly as the cases I have observed have been in nurses and physicians, who had been attending diphtheria patients. It is at first a thickish membrane, but about the seventh or eighth day the membrane thins out. There is much irritation with redness about the nasal orifice, but the membrane does not extend further back than the middle region of the nose. In diagnosis this type is to be distinguished from syphilis. In the treatment locally a mild antiseptic alkaline solution, for cleansing, followed by an emollient containing resorcin, 5 gr. to the ounce, has afforded the greatest relief to the nasal discomfort.

DR. BURT R. SHURLY, Detroit: It is true that I have been one of the unfortunate victims of a unilateral infection of the nasal mucous membrane, which is exceedingly rare in the practice of medicine. In a very considerable experience with diphtheria through a period of fifteen years I have seen a number of cases of nasal diphtheria, very few of which were primary and remained primary nasal diphtheria. In my own particular case the infection came while I was an intern at the Children's Hospital during an epidemic of diphtheria. The symptoms which bring the trouble before us are, first, epistaxis; in my

own case that was the first symptom, and in all the others I have seen there has been an epistaxis as one of the symptoms of onset. Coryza, swelling of the nasal mucous membrane, swelling of the chain of lymphatics connected with the nasal mucous membrane, temperature rarely over 100 also develop. In these primary cases there is more or less characteristic odor to the discharge from the nose. Almost all cases of nasal diphtheria which we see in epidemics are attended by secondary infection of the nasopharynx, especially of the malignant and dangerous type. In the nasopharynx we have the key to all the complications that come with nasal diphtheria. There are undoubtedly a good many cases that are unrecognized. It is not a malignant condition and many cases pass on and are never seen after diagnosis. The problem of diagnosis is very quickly cleared up when the Klebs-Loeffler bacilli are found.

The essayist spoke of giving 2,000 units of antitoxin; I think we all recognize the advantage of a full dose, at least 5,000, as the initial dose. It has seemed to me that absorption is increased by tampering too much with the mucous membrane. A simple mild alkaline treatment to the nasal mucous membrane is best. We can do all sorts of things with the mucous membrane of the throat that we cannot do with the mucous membrane of the nose.

As to intubation, the case that Dr. Roy related in detail was one of a particularly toxic type. The mortality is exceedingly high in all such cases. In true laryngeal diphtheria the value of intubation is well recognized. When the child is intubated and you have a considerable amount of discharge from the postnasal region, if the position of the child is changed to that of an inclined plane of about 45 degrees and the head kept lower than the feet, I am sure you will find that the child will do much better after intubation. Children under three years of age have not the expulsive cough to help the drainage from the different cavities. They do very much better if the head is kept at a lower level than the feet.

Dr. M. A. Goldstein, St. Louis: Too much emphasis cannot be laid on the importance of one type of diphtheria which has been admirably brought out by the essayist—the attenuated type, without the usual characteristic symptoms of nasal diphtheria. To illustrate the point I want to make I would refer to a case I reported locally about four years ago; that of a little girl 7 or 8 years of age who came from dancing school one afternoon where she had been in contact with forty or fifty children of her own age. The mother describing the case briefly said that the child had had a discharge from the nose for three or four weeks. On examination the nasal mucosa was found much swollen and the nose filled with a membrane. Secretion almost in the nature of a cast of the entire lower meatus was pulled out. The disease was unilateral in character, no clinical symptoms, temperature normal, the child complaining of no inconvenience of any sort. The child had a little six-months-old brother at home who evidently was autoimmunized, and there were two or three other children in the family that did not contract the disease; but within a week after I had seen this case, six cases of diphtheria developed in that dancing school, probably all contracted from this child. The cast of plastic exudate drawn out from the nasal meatus of the one side of the nose submitted simply to smear test showed the presence of pure Klebs-Loeffler bacilli, even without culture. A guinea-pig inoculated with that material died within twenty-four hours.

This to me is the keystone of the essayist's report—the fact that diphtheria can exist in an attenuated form in so harmless a type that it may go unnoticed and yet may by contact of this one child with its playmates spread the contagion so that there may be the development of a complete epidemic.

Dr. J. A. Stucky, Lexington, Ky.: Two or three points in the essay should be emphasized, especially for the benefit of the younger members of the profession. A little scientific neglect in some of these cases of nasal diphtheria is preferable to too much treatment. By that I mean this—that there is a temptation to clean out every little speck one finds in the nose. In doing this one opens up new avenues of infection. The patients with nasal diphtheria I have found complain more bitterly than any other class of patients with this disease; they are stopped up and they want you to clean the nose out and make them comfortable and if you do this with your atomizer or douche, or pull off this membrane and leave a raw surface, you increase the absorption.

Another point is the manner of stopping the hemorrhage. There is danger in packing the nose, and yet you must stop the bleeding. If it comes anteriorly and the posterior nares is completely blocked up with exudate you can stop the hemorrhage often by packing the vestibule and then closing the cartilaginous sides of the nose firmly with adhesive straps. If hemorrhage is profuse posteriorly I think it is preferable to use the postnasal tampon rather than to pack the whole nose.

I think tracheotomy in diphtheria should be the last resort. We can try intubation and be ready at any moment to do a tracheotomy if necessary.

Another thing I have noticed is the wonderful tolerance to antitoxin of these patients with nasal diphtheria. They require two or three times as much when they have nasal diphtheria as they do in the pharyngeal and laryngeal forms, and we should bear this in mind and start with a maximum dose and repeat it frequently, as often as every eight or twelve hours.

Dr. George F. Cott, Buffalo: Before the days of antitoxin laryngeal diphtheria, or membranous croup, was considered the most dangerous form of diphtheria. Since that time nasal diphtheria has come to be considered the most dangerous. In every case I have found that where the glands of the neck become so swollen as to protrude beyond the angle of the jaw every one of the patients died, whether the patients appear very sick or not; usually they do not appear to be very ill. I think it is advisable to do a tracheotomy. To intubate first is a waste of time and endangers the life of the child. Dr. Roy says the reason he would rather do tracheotomy is to prevent the blood from obstructing; I think the reason is that in these cases in which you have excessive membrane the tube becomes clogged from the loosened membrane and therefore it is better to do tracheotomy first and not as a last resort. When I am called in time and am satisfied that enough antitoxin has been given the child I never use any kind of local treatment. If the nerve centers are not affected the child will recover if a sufficient amount of antitoxin is administered. I have seen a case of chronic diphtheria lasting six months and the child died at the end of that time.

Dr. E. Fletcher Ingals, Chicago: I understood the author to state that the mistake he made was not to have done a tracheotomy in the beginning. On the contrary I think he was quite wise in not doing it. If he had done it and the child had died, as it would have done, he would have attributed the death to the tracheotomy. Certainly it is not wise to do a tracheotomy immediately in these cases. I fear that some one from reading the paper may think that Dr. Roy advises that tracheotomy be done at once, and I should not want that to go out as the opinion of this Section.

Dr. Otto Glogau, New York: I saw a boy aged 15 years with immensely hypertrophied posterior end of the right inferior turbinate, on removal of which there was considerable hemorrhage. I did not know the reason then, as all routine precautions were taken. Ten days later the boy had mastoiditis in both ears and had to be operated on. Before the operation we examined the nasal discharge and found diphtheria bacilli in the discharge from the nose and in that from the ear. No doubt it was a case of chronic diphtheria.

Dr. R. P. Scholz, St. Louis: I believe diphtheria occurs in the nasal cavities much more frequently than is ordinarily supposed. While epistaxis is more or less characteristic of nasal diphtheria, yet if in cases of ordinary diphtheria, or cases in which the membrane is located in the nose, be left without rhinoscopic examination till bleeding sets in, many will be overlooked. Hemorrhage occurs comparatively late in the disease, and at a time when the membrane begins to come away. I believe that hemorrhage occurs much more frequently in those cases in which the membrane is located in the anterior portion of the naris, and is brought on possibly by mechanical disturbances. My experiences with diphtheria in the nasal cavity in the adult is comparatively limited. While working under Prof. Escherich in St. Anna Kinderspital, in Vienna, I made it a matter of routine to examine rhinoscopically every child suffering from diphtheria, and was surprised to find how very

frequently membranes existed in the nose, causing few or no symptoms. In my opinion, hemorrhage should be controlled by applying a small compress to the bleeding point, with the addition of styptics when necessary, but if this does not suffice the nose should be tamponed. It is true that after the removal of the dressing there may be bleeding, for this reason great care should be exercised in its removal. In these cases paraffin gauze as described by Williminski, makes a suitable tampon.

DR. BRYAN D. SHEEDY, New York: After an experience of about twenty years, in which I have treated a large number of cases of diphtheria, both nasal and laryngeal, I would not do a tracheotomy in cases such as Dr. Roy described. I believe that most cases of nasal diphtheria are over-treated. Antitoxin is practically our sole anchor in such cases, and I believe a case of nasal diphtheria that manifests marked symptoms should be treated energetically with antitoxin in large doses, the local treatment, other than instillation of mild antiseptics, being practically neglected. Patients suffer more from septic symptoms when the membrane is removed than when it is allowed to go untreated. I would advise strongly against tracheotomy except as a last resort, and in my experience the results have been about the same whether tracheotomy was performed or not.

DR. C. M. MILLER, Richmond, Va.: I have seen several of these cases of chronic diphtheria which have interested me a great deal. All of them were brought to me with the diagnosis of a foreign body in the nose. The other day a physician came to me with such a case. The discharge was in all the cases unilateral; in one child of 2½ years it had persisted five weeks; in another child of 8, for eight weeks, so far as the physician could determine. Each of these patients had an excoriated lip from the discharge. Protests were made when I attempted to take a swab. The physician said they never heard of such a thing as chronic diphtheria of the nose. In one case I had to have the aid of the Board of Health to get the child isolated. The physician would not believe it until the child's father became infected. In another case in a neighboring city, strong protest was made when I wanted to take a culture, and that child infected eighteen others. As to anything else but antitoxin, it seems to me it is out of all reason to use anything else. As long as twenty years ago, when I was a medical student, we were taught that the membrane readily returned after being removed. Now if it returns so readily, why should we remove it?

DR. C. JACKSON, Pittsburg, Pa.: I think we will all have to acknowledge having made the diagnosis of nasal diphtheria too late to save the child's life; I know I have a number of times.

DR. DUNBAR ROY, Atlanta: It is unfortunate that things get so distorted when you read a paper that when you hear the discussion you wonder what kind of a paper you have read. I did not say that antitoxin should not be used in diphtheria, or in nasal diphtheria. Of course every one knows that that is the right thing to do. I only mentioned the fact that if I had another case similar to this I would do as I say in my article. After I had tried for one hour to stop that hemorrhage I should have been in a better position if I had had a tracheotomy tube in, and if I had a similar case that is what I would do, but of course as a last resort. I do not advocate doing a tracheotomy as soon as you see a case of nasal diphtheria. But when the case is at such a point that something extreme must be done, then I do advocate it. Another point is the fact that there are many patients with this chronic nasal diphtheria going around without any actual symptoms existing, but able to cause the disease in a virulent manner in other children and adults. I have seen a number of such cases in children between the ages of 5 and 10.

The Insanity Dodge.—Dr. J. J. Walsh says: 1. The term insanity is so vague that its use as a plea to enable the criminal to escape punishment is not justifiable. 2. Responsibility is never quite eliminated except in the absolute idiot. 3. Punishment is meant to deter the individual criminal, and others tempted to criminal acts. 4. Punishment is more needed for those of lowered mentality than for the normal.

TESTS OF VISUAL ACUITY

AND CARDS FOR SUBJECTIVE CORRECTION OF AMETROPIA *

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The testing of visual acuity and the measurement of ametropia by the improved vision obtained by test-lenses are two distinct processes, which will be best carried out by different forms of apparatus. In testing visual acuity we need only to determine a single "minimum separabile," which is done most simply by finding the greatest distance at which a test of known visibility can be recognized. In the subjective measurement of ametropia we have to provide for a "minimum separabile" progressively diminishing as the accurate correction of the refractive error is more nearly approximated. This requires a series of test-objects progressively diminishing in size, such as the ordinary test-cards furnish.

STANDARD OF VISUAL ACUITY

The adoption last year at the Naples ophthalmologic congress of the report of the committee appointed at the preceding ophthalmologic congress at Lucerne to propose an international standard of normal visual acuity, with the discussions of the subject that have arisen from that report, make the present an appropriate time to consider this important subject.

The international report fixed normal visual acuity as the ability to recognize two points separated by an angle of one minute; and chose as the test of this ability the so-called "broken ring," a black circle on a white ground, the black line having a width one-fifth its outside diameter, and the break in the black ring having just its width. Such a ring, when placed at such a distance that its total diameter subtends an angle of five minutes, gives a break in the ring that subtends an angle of just one minute; and the ability to tell in what direction the break or gap is placed indicates normal visual acuity.

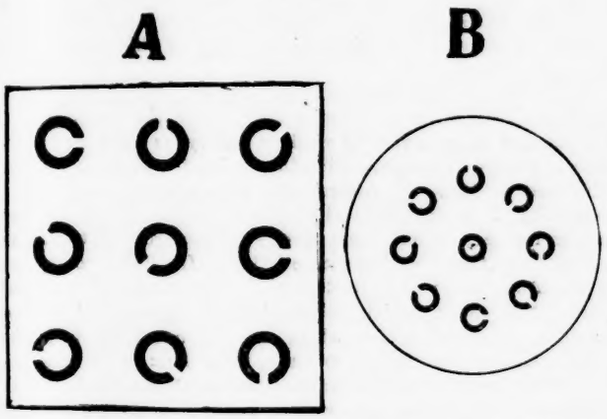
The principle of the "minimum separabile" and its normal value of one minute were announced and pretty well established as the proper theoretic basis for sight testing by Roger Bacon over two hundred years ago. On strict analysis it is found to underlie most of the tests for visual acuity that have been suggested since. At the Nashville meeting of the American Medical Association in 1890, I suggested the use of a black square, each side of which should subtend an angle of three minutes, with a space cut out of one side of the square subtending an angle of one minute, the test being to designate which side of the square was left open. I did not then know of the broken ring advocated by Landolt before the *Société française d'ophtalmologie* in 1888, which has all the advantages of the incomplete square with this distinct superiority: The ring can be turned in twice as many distinct directions. The square is capable of four different positions; the break in the ring can be turned up, down, right, left, or at angles of 45 degrees, midway between those positions.

If a single broken ring, on a circular card, be shown to the person to be tested, there is but one chance in eight for him to guess correctly in which direction the gap is turned. By concealing the card for an instant and turning the ring differently the test can be repeated indefinitely; and a few repetitions will render it certain that the eye possesses the vision claimed. The test is extremely convenient for examining patients away from

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, held at St Louis, June, 1910.

the office. If the position of the gap is recognized at a certain distance, the same ring can be again shown at a greater distance until the limit of recognition is reached. A single letter or line of letters cannot be used this way. Any testing of acuteness of vision can be done with such a broken ring on a circular card, that can be carried in the vest pocket, with absolute scientific accuracy. All possible errors from the patient learning the sequence of the letters used as a test and the needed precautions to prevent this are avoided.

For testing the vision of school children, or of men entering a transportation service, a series of broken rings may be used. The sequence of such figures is harder to commit to memory than that of a series of letters or numerals. If the rings are arranged symmetrically on a square card, as in A, either edge of the card can be turned upward. Each way gives a distinct sequence, and it is impossible for the person tested to know which sequence is being used. Or the rings may be arranged in a circle on a circular card, B, and held with either of them at the top.



International tests; A, visible at 5 meters (about 16 2/5 feet); B, visible at 2.5 meters.

With such a test-card the test of visual acuity may be repeated until certainty as to the visual acuteness has been reached. If recognized at one distance, the rings can be moved to a greater distance and tried again; things that cannot be done with test letters or numerals. Then, too, such a test can be furnished on a small card easily transported, a very important advantage where large numbers of cards are to be distributed, as for testing the vision of the school children of a county or a state.

For simply ascertaining the visual acuity the most simple and convenient way is for the person conducting the test to hold the card, and starting from a sufficient distance gradually to approach the person to be tested, noting the distance at which the direction of the break is first recognized in the ring to which attention is directed. Such a test may be explained to a whole row of children at once. Then the teacher, stepping back, can proceed to test each of them while all the others look on. The spirit of imitation and that of rivalry are brought out, to aid in overcoming the inertia, which often makes it difficult to induce a child to do his best with a new exercise of this sort.

TO MEASURE AMETROPIA

For the subjective measurement of ametropia by trials with lenses a very different test-card is necessary. The physician must be near the patient to make the needful changes in the lenses; and test-objects that are easily designated as recognized (pre-eminently letters and numerals) are far superior to any others. When we come to arrange a test-card of this kind we have to take account of the fact that the different letters or numerals are not equally easy to recognize. All who have arranged test-cards of letters have had to meet this difficulty. Snellen chose block letters because with them it was possible to approach nearer to equality of visibility. But he and others who have followed him have had to restrict themselves to the employment of certain letters, and even then they have been far from attaining a full equality.

The unequal visibility of letters, however, may be a distinct advantage in measuring refraction. As one letter after another is brought out by successive improvements in the correcting lens before the eye, the one line of letters serves to test various changes of visual acuity. Only when we attempt to use these letters to test acuteness of vision does their unequal visibility become a disadvantage, and we are compelled either to greatly restrict the number of letters employed for our tests or to introduce serious indefiniteness into our results.

A valuable study of the relative visibility of the different letters in the block-letter alphabet was made in this country by Dennett,[1] and within a few months Gebb and Lohlein[2] have reported a study made with letters, numerals and simple geometric figures of different sizes.

The essential point is that we cannot say that letters of a certain size and formation will be just recognized by the normal-sighted at a certain distance until, empirically, we have determined at just what distance they are so recognized. Wherever such objects are used to test visual acuity, it is essential to compare their visibility with that of the international standard broken ring. This is just what the International Committee did for the few letters and numerals they admitted to their test-chart. This is just what every ophthalmic surgeon can and should do with the test-cards he habitually uses. By making such a comparison and numbering the different lines in accord therewith, without any change in the test-charts we use, we can arrive at uniformity in our records of visual acuteness. But in numbering a line that contains any considerable variety of letters it must be understood that to recognize one or two letters on it means one visual acuity, and to recognize all means a higher visual acuity. It would be of practical value to note at one end of the line what vision it means to recognize two of the letters, and also to indicate what vision is necessary to recognize all, as has been done on the cards referred to below.

In the subjective estimation of ametropia by trial lenses and cards we often proceed by asking the patient whether each change in the lens makes the vision better or worse. This is true subjective testing, depending wholly on the patient's honesty and power of accurate discrimination between different visual impressions. But the method may be given much of the value of an objective method by requiring the patient to name the letters or numerals recognized from time to time, the correct naming of one before unrecognized being the best possible evidence of improved vision by a better approximation to the perfect correction.

But for this purpose the test-letters quickly lose their value, when once clearly recognized. They are correctly named from memory when less distinctly seen, and the patient's answers mislead rather than assist in

1. Dennett: Tr. Am. Ophth. Soc., iv, 133 and 245.
2. Gebb and Lohlein: Arch. f. Augenh., liv, 69 and 189.

finding the true correction. While the vision is being improved rapidly, and the reading progresses from lines of large letters to those of smaller letters, previously quite unrecognizable, this difficulty does not trouble us. But when nearly the best vision has been reached, when the changes to be made are slight, one line of letters soon ceases to be serviceable, and the only resource left us is to change the test-card.

More series of these smaller letters are needed than of the larger letters. So it seems worth while to multiply the former, without the latter, by having test-cards containing only the smaller rows of letters, for use in the accurate subjective testing of refraction. A series of such test-cards I have had prepared. The small figures at the end of the lines indicate, according to the international standard, the visual acuteness required to recognize the letters. The figure at the right gives the distance at which the letters subtend the angle of five minutes. The figures at the left give the visual acuity required to name two letters on that line, and the visual acuity required for the recognition of all the letters on the line. The size of the letters is such that their heights subtend the angle of five minutes, at the distances of 6, 5, 4 and 3 meters, respectively (about 19 2/5, 16 3/5, 13 1/10 and 9 4/5 feet). These are the distances at which they are supposed to be read according to the Snellen scale.

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ABSTRACT OF DISCUSSION

DR. C. H. WILLIAMS, Boston: In Dr. Jackson's paper two tests are proposed, one for the acuteness of vision, using the broken ring of Landolt based on the "minimum separabile;" the other for the improved acuteness of vision due to correcting the ametropia with glasses, and using cards with graded letters and numerals. If a doctor had an unlimited amount of time and patience, and if the patient had more accurate powers of observation and the ability to describe what he saw, it might be possible to use both these tests and get satisfactory results.

The principle of the "minimum separabile" was first proposed by Hooke a little over 200 years ago. He found that with a number of persons (taken without any refractive examination of their eyes) the minimum distance at which they could distinguish two stars was one minute. Donders in his book on "The Accommodation and Refraction of the Eye" (1864, p. 195) refers to this as the first exact appreciation of this physiologic question; and, after quoting other authorities in confirmation of this minimum distance, he goes on to say: "For practical use in those laboring under affections of the eyes, the method here laid down for physiologic objects is not applicable. In practice it is absolutely required that the person examined should give proof that he actually distinguishes, as is done by the naming of known figures, letters, numbers, etc."

In 1862 Snellen published the first edition of his test-types made up of separate capital letters of such a size that at the distance printed above each line the letters subtended a visual angle of five minutes and the component lines of each letter an angle of one minute. He also introduced the formula V=d/D, in which V is the acuteness of vision, d is the greatest distance at which the letters are read correctly, and D is the distance at which the letters subtend the standard visual angle of five minutes and should be named correctly by the average normal eye. It seems very desirable that Snellen's standards and method of notation, which have proved so satisfactory for the past forty-eight years, and have been so generally adopted, should be retained. Without changing Snellen's standards, it is possible to improve his test-types in two respects, as has been done by Dr. John Green. In Snellen's types the gradation of letters is not uniform, and there are not enough lines of letters of the smaller sizes, where most of the refraction work is done.

Green was the first to propose a regular gradation in geometrical progression (*Tr. Am. Ophth. Soc.*, 1867, 1868, 1903, 1905) and to publish sets of test-letters engraved in this way, and Javal, in a paper before the Ophthal. Section of the International Medical Congress in Paris in 1900, says: "Je ne doute pas qu'avec le temps les échelles à progression géométrique proposées par Green dès 1868, ne soient universellement adoptées." This geometric series, with the common ratio of $\sqrt[10]{2}=1.26$, was adopted by the American Opthalmological Society in 1903, and, with the ratio of 1.259, it was adopted by the Société française d'Ophthalmologie in 1904.

It seems to me that Snellen's letters, especially in a geometrical ratio, can be used to determine the acuteness of vision for all purposes better than any other test yet proposed. With the broken ring there is trouble with irradiation at the gap, which interferes with the clearness of definition and the location of the gap. For examinations of men in railway service the broken ring is not well designed, and unnecessary trouble would be caused by rejecting men as the result of a test with such a series of figures with which they were not familiar. The memorizing of the letters can be easily overcome by using the cards with one size of letters on each card, each size being printed in triplicate with a different arrangement of letters on each card, and such a set of letters, which I arranged according to the Snellen standard, has been used with good results on a number of the railway lines of this country for the past fifteen years.

In addition to the test-types for distant vision, we need a more accurate series of printed matter for the reading test. Few of the many series of reading test-types published from time to time will compare with the "Schrift-Scalen" of Jaeger, published in 1854, for fulness and even grading, and which, from Nos. 1 to 9, practically give a paragraph of reading matter for each visual angle of one minute from 4′ to 12′, as measured by the short lower-case letters. In 1904 a committee of the American Ophthalmological Society prepared a set of reading-test cards, which follow Jaeger's types, and give a carefully prepared series which can be noted by a slight modification of the Snellen formula, viz.: L = d / D, in which L (lectio) represents the reading power, d the distance (in decimeters) at which the print is read, and D the distance (also in decimeters) at which the short lower-case letters, such as c, n, o, etc., subtend the visual angle of five minutes.

DR. F. PARK LEWIS, Buffalo, N. Y.: I wish to illustrate a method of determining, at the same time, the acuity of vision and refraction. My test is founded on the broken ring test, objections to which have been raised by Dr. Williams. It consists of a broken ring which by rotation may be made a completed ring. One of the chief difficulties of getting an accurate estimate of ametropia is the inability of the patient to indicate the character of the test, especially when a symbol is used, or the direction of the intercepted arc when the test is the broken ring.

Test of acuity of vision and refraction; 1, black disk with white parallelogram on edge; 2, ring with intercepted segment, which may be placed at any angle, to be placed over 1; 3, intercepted segment closed by revolving 2 over 1.

The ring with the intercepted arc made after the plan of the Committee of the Naples Congress is rotated by a cog-wheel arrangement connected with a button in the hand of the patient. It consists of a white ring with an intercepted segment on a black background. The opening may be turned in any direction and is closed by rotating it over a white band of the same size which is placed under it, so that by the closure of the ring, accomplished by the patient, the

acuity of vision is determined. Instead of a number of rings having broken arcs turned in various directions, one ring of each of ten sizes is sufficient, and by its rotation an infinite number of directions may be secured and an absolute determination made of the acuity of vision.

The diameter of the circle is 100 mm. and the width of the band 20 mm., leaving the desired segment a parallelogram, the measurement in each direction of which is 20 mm. Ten broken rings are employed, each of which is one-tenth less in size than the next preceding it. A duplicate of these rings is placed facing the examiner and rotated at the same time, so that he is immediately able to recognize the exact visual acuity of the patient. If there are test-colors on the outer ring and matched shades on the inner circle, the same test can be used for the determination of color-blindness.

DR. W. H. LUEDDE, St. Louis: For use outside the office this device of Landolt, which I found in use at his clinic in Paris four years ago, answers the purpose very well. It is made of two cards arranged to turn one on the other. A space in each card enables the physician to bring into successive view rings of different size on the other card. If the patient recognizes one, without changing the distance, the physician can change the disc and thus dispose of one size of ring after the other until vision is determined. The larger rings on the back of each card are for very low degrees of vision. I present this as an additional convenience in this very excellent method of accurately determining the vision.

DR. EDWARD JACKSON, Denver: It is not proposed that this standard shall supersede our card of test letters arranged according to the Snellen standard. In so far as the Snellen standard is a standard we continue it without change. But in order to use the metric system, we do not have to confine ourselves to the whole-length meter stick. We can divide the meter into millimeters. So without departing from the Snellen general plan, we can adopt a test that is very much more accurate than any card of test letters that was ever printed. There has never been a set of test letters, no matter how carefully selected, that meets all the requirements for a standard. The different men who get out different test-cards have made different selections of letters. Whether they conform to the five-degree scale, each letter subtending an angle of five degrees, or whether they depart from it, there never was a set of test-letters that was an exact test. Now, an exact science, such as ophthalmology is, should adopt an exact test. This has been offered. With reference to familiarity with the forms, that obtains with the test letters, which renders them unreliable for comparing those who are accustomed to read much of the time with those who are not; the international standard is an important advance. The broken ring also has a distinct superiority in requiring the persons tested to give positive evidence that they do see it, by designating the direction of the break in the ring. To give this evidence does not require that the patient shall know the right hand from the left. Young children, whom we cannot get to answer the question, will indicate the direction by pointing with the hand. The particular forms of test cards shown here are more simple than either of the modifications proposed of using a single test ring. I cannot conceive of anything more simple than the little round card. You can test with perfect accuracy a person in any position, lying in bed or otherwise, where you can get a good light on the card.

The Liver and Pancreas in Twelve Cases of Diabetes.—E. Parmentier compares the clinical manifestations of the diabetes and the conditions in regard to the liver and pancreas functioning and findings with the autopsy report. His work is published in the *Bull. de la Soc. Méd. des Hôp. de Paris*, 1910, xxvii, 532. The details of the cases are tabulated for comparison; they show the remarkable frequency of changes in the pancreas in all the clinical forms of diabetes. The hyperplasia in the connective tissue, sclerous lesions in the excreting passages and the angiomatous aspect were most striking in both liver and pancreas, paralleling each other in these two organs. The findings show further that the lesions in diabetes are by no means confined to the islands of Langerhans. The article is illustrated.

THE USELESSNESS OF LOCAL TREATMENT IN PUERPERAL SEPSIS *

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When I was in active obstetric practice, twenty-five or thirty years ago, I saw many cases of puerperal sepsis, especially in consultation and coming from the hands of midwives. We were then just beginning to practice antiseptic midwifery and our great object was to kill the germs. Hence, we began to use various remedies that we supposed would destroy micro-organisms, such as phenol and mercuric chlorid, and I used these faithfully as vaginal douches and by intra-uterine irrigation. Then the fad of iodoform started, and I plead guilty of even introducing the stinking suppositories into the uterine cavity and letting them melt there.

But it soon was clear to me that there was not much difference in the ultimate result, no matter what kind of local treatment we made use of—that the real aim was asepsis, the prevention of puerperal fever.

I then found the best result by cleaning out the uterus gently with a little absorbent cotton or gauze on a swab, carefully wiping it dry, and then swabbing it out with pure phenol. My idea was that by curetting the lymph-channels were opened and raw surfaces were made, and thus better chance was given for absorption, while by simply mopping the uterus out any little detritus and secretion which might contain bacteria were rubbed away, and if any small raw surfaces existed, by cauterization with pure phenol they were closed and covered, thus preventing absorption and at the same time perhaps destroying all the micro-organisms that existed there. But even this mode of treatment I doubted, and finally stopped that also, depending altogether on constitutional treatment.

I have always had unbounded faith in the use of quinin, holding that it inhibits or checks the ravages of micro-organisms and toxins in the blood, but in our present light it seems to me that it probably supplies some opsonin. Then I believed in elimination, and kept the bowels free, and gave the patients large quantities of water to flush the kidneys constantly. This mode of treatment seemed to give as good results as the heroic local treatment which was all the rage, if not better.

In connection with puerperal sepsis there is another thing to be considered, and that is the kind of micro-organism which causes the trouble. In most cases it is the streptococcus, pneumonia, diphtheria, grip or colon bacillus—sometimes a mixture of two or more. These all seem to cause more or less local disturbance, with a good deal of pain, but I saw a number of cases of puerperal sepsis in the course of my practice which absolutely produced no symptoms. The patient, when asked how she felt, replied, "Very well." Asked if she had any pain, she would say "No." The abdomen would be perfectly flat; no localized tenderness or pain anywhere; patient was feeling all right, taking nourishment, bowels moving perfectly; in fact, all the bodily functions apparently in good condition. The only thing she might complain of was a nervousness, lack of sleep. On looking at a patient like that and talking with her one would say that there was nothing the matter with her,

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

but on putting a thermometer in her mouth one would find the temperature 105, 106 or 107, and over, with a pulse of 120 to 140, and it would be clear that she was seriously sick.

Now this peculiar type of puerperal sepsis, I hold, is due to a special micro-organism that has not yet been isolated or discovered. One may find the streptococcus in the secretion, but one finds the same in other cases, with no such symptoms. In this peculiar type of puerperal sepsis the patients will drag along for four, six or eight weeks, and finally recover, although some will die —I should say 25 to 30 per cent.

As far as the local symptoms and manifestations are concerned, in the general run of cases, I find them of two varieties: one in which the infection travels up the uterus into the tubes, causing septic peritonitis, generally of a severe grade; and another variety in which the infection travels along the lymphatics as the result of an abrasion, especially a tear in the cervix, and the whole symptoms of the disease seem to develop in the broad ligament and in the cellular tissues of the pelvis, from there spreading in the direction of least resistance, sometimes behind into the cul-de-sac of Douglas, and breaking into the rectum spontaneously in fortunate cases, or working up toward Poupart's ligament, where it can be readily opened. Cases of the latter kind last for weeks and sometimes months, and the patient generally recovers.

The point I want to make is simply this, that by local treatment more harm is often done than good. Douches given by ignorant persons often implant new and virulent micro-organisms within the genital tract, while scraping and curetting and injuring the delicate mucous membrane opens new channels for absorption.

When a localized abscess is formed which can be opened into the cul-de-sac of Douglas or somewhere else, I certainly believe it should be promptly opened, but as we see the disease generally several days after its onset, I think no local treatment will be of any avail. Experiments made on mice with anthrax bacillus have shown that if the bacilli are appplied to a raw surface and removed ten minutes later and the parts cauterized the treatment will have no effect, but the animal dies of anthrax. The human system may have a greater resisting power; still, after twenty-four hours or more such an amount of absorption has taken place that the removal of the discharge can do little if any good. Continued irrigation, it has been shown, cannot keep the parts clean, nor can douches or irrigation twice a day have any effect.

I have been all the more desirous of bringing this view before our section since reading the proceedings of the last German Association of Obstetricians, where Winter, in an exhaustive article, shows this most clearly, coming to the conclusion that simple absorption ceases as soon as the necrotic tissue is cast off; that simple local infection and endometritis stops soon without any treatment; that no local treatment will prevent deep or general infection, and that when absorption takes place and there are remnants of tisue still in the uterus, one should be tardy about removing them, as these are generally quickly cast off and the patient gets along just as well as with the most vigorous treatment.

In the present state of our knowledge it seems to me that we should discourage as much as possible the indiscriminate local treatment made use of during the last decade or two; that any remnants of tissue should be most gently removed; that local abscesses should be opened at the right time, that is, in a week or two, and that intra-uterine and vaginal douches should not be made use of. With a clearer knowledge of bacteria, and especially the development of antibodies in the system, we should encourage as much as possible the development of antibodies and the elimination of toxins, by flushing the kidneys, keeping the bowels open and favoring diaphoresis. At the same time we should try to get a culture of the infecting micro-organism so as to know what we have to deal with, and by the use of antitoxins increase the opsonic index sufficiently to carry our patient to a successful issue.

SUMMARY

1. In puerperal sepsis, local treatment is of no benefit.
2. Douches and intra-uterine irrigation often do harm.
3. Local abscesses should be opened and allowed to drain without irrigation.
4. Constitutional treatment, on general principles, should be instituted, quinin and opium being the sheet anchor.
5. Elimination in every direction should be assisted.
6. The infecting organism should be identified and the opsonic index increased by antitoxins.
7. And, after all, prevention should be our constant endeavor, a clean patient and clean doctors, and midwives; this is most often secured by wearing rubber gloves.

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ABSTRACT OF DISCUSSION

DR. E. GUSTAVE ZINKE, Cincinnati: The local treatment of puerperal sepsis is never to be discarded; it is of great importance, and should be better understood. Before we proceed with the treatment of puerperal sepsis, however, we must first determine with what form of sepsis we are dealing. There are two distinct varieties of puerperal infection and a sharp line must be drawn between the two. In one instance, the most frequent, we deal with the saprophytes; in the other, with the streptocccoci. In the former, if the infection is recognized early and the uterine cavity promptly cleaned, the temperature at once subsides and the trouble is at an end, as a rule. The cases of so-called sapremic infection, or wound-intoxication as the Germans call it, begin in a very mild manner. The pulse remains normal for sometime and the temperature rises very slowly. If the case is not recognized promptly and the necrosis, produced by the saprophytes, becomes extensive, there results, in time, a so-called putrescent endometritis and then the symptoms gradually become more severe and the evidence of systemic infection is much more profound. In these cases local treatment is of prime importance. The gentle cleaning out of the uterine cavity, followed by a copious antiseptic uterine irrigation (ten or twenty quarts) is often sufficient to cause a prompt recovery. Should the temperature rise again, the irrigation may be repeated within twenty-four or forty-eight hours, but this will rarely be necessary.

It is different when the streptococcus has invaded the parturient tract, which is the so-called wound-infection of the Germans—the true septic infection. When the streptococcus gets into the birth canal, especially within the cervical lacerations or, which is worse, within the placental site, a profound systemic disturbance manifests itself at once and the temperature runs up quickly to 106 F. and more after a chill of some duration. The pulse, too, goes up promptly to 120 and over. In these cases the germs immediately pass through the wounds into the blood or lymph-vessels, or both, beyond reach. But even here the entire parturient canal must be kept clean in connection with the constitutional treatment. The serum-treatment, if resorted to early, will give the best results.

DR. HORACE G. WETHERILL, Denver: As usual Dr. Carstens has stated his opinions forcefully and, as usual, he is, in the main, correct. I think we shall all agree that, on the whole,

intrauterine treatment following septic infections, particularly the use of the curette, has been injurious. Dr. Carstens' treatment seems to me to be much too broad, however, and it ignores one of the most important of the accepted surgical principles; —the drainage of an infected cavity. Many times each of us has found a large amount of septic putrid material bottled up within the uterine cavity. The principle of drainage which we apply to infected cavities everywhere should be applied to the uterine cavity under these conditions. If we use drainage, and if it can be used without the risk of a retrograde infection, why not use irrigation as well? A drainage device which I have used for this purpose for several years is a double tube so constructed that it is possible to irrigate through one leg of the tube and get the drainage from the other. With a tube of this kind connected with a fountain syringe continuous irrigation may be employed, if it is desired. If this is done with a permanganate of potassium solution, or better still, with alcohol (30 to 50 per cent.) there is absolutely no danger of poisoning.

DR. H. J. BOLDT, New York City: The whole matter resolves itself into a question of diagnosis, and I believe that is what Dr. Carstens really meant. We realize that when we have to treat bacteriemia, local treatment as such, if the system is overburdened with streptococci, becomes absolutely useless. He has also told us, and it is absolutely correct, that purulent material, such as decidua, or perhaps a piece of retained placenta, left in the uterus, is, as a rule, spontaneously cast off in a short time without in all probability causing a very serious disturbance, except temporarily. Dr. Carstens has particularly advised against the use of a curette; that is the chief point which he brought out. To abstain from local treatment, when a septic infection is local, it is not our purpose to confirm such an idea, but whenever we have a severe local septic infection, as for instance from the external genitalia, it is our duty to look after that. If we have reason to believe that there is foreign material in the uterus which is not soon cast off from the uterus spontaneously, and if the cervical canal is patulous, which is usually the case, then we should enter the uterine cavity and remove the pathologic material as far as possible with care; but the point is, not to cause traumatism, because traumatism on the puerperal tract will open the avenues for septic infection.

DR. HENRY SCHWARZ, St. Louis: I agree with Dr. Carstens in the conviction that prophylaxis is the main thing. I want to emphasize what he said about the use of rubber gloves, clean hands and clean instruments as the greatest factors in preventing loss of life by septicemia. I agree with Dr. Boldt, that diagnosis of the nature of the infection is of the utmost importance, and I insist on a bacteriologic diagnosis in all cases which are used for statistical purposes. The only variety of septicemia which I wish to discuss here, are the cases of general bacteriemia in which the streptococci are found in the blood. When you can get a culture of streptococci from the blood, it is my experience that, as a rule, nothing in the world can save that woman; these fatal cases of streptococcus infection are all cases in which the germs are brought to the patient by the doctor or by the nurse, or by the instruments; these cases can be prevented and they must be prevented.

I want to warn against the use of bacterial vaccines in these cases of puerperal septicemia; I mean against the injection of killed cultures of streptococci into the system of a woman, whose blood contains already billions of living streptococci. You can not hope to increase the formation of antibodies by so doing, for the living streptococci have already caused the formation of all the specific antibodies which the blood of this respective patient can form; the use of anti-streptococcic serum in these cases is logical; it should be given in large doses frequently repeated; it can do no harm.

The brilliant results obtained with bacterial vaccines in furunculosis and other chronic conditions make it likely that in the localized form of septic infection good results may likewise be obtained from the careful use of streptococcic vaccine, but, I protest against the indiscriminate administration of this vaccine by the general practitioner, because by temporarily lowering the resisting power of the body, that may enable streptococci causing a local infection, such as a pelvic cellulitis, to overthrow the natural defenseworks of the body, and thereby change a local infection, which is curable, into a general one, which may prove fatal.

DR. J. H. CARSTENS, Detroit: If the uterus is flexed and retains septic material I would expect any one to straighten it out and establish drainage. What do we do in appendicitis? We open the abscess, put in a little drainage tube, and that is all. We do not irrigate. The abscess is filled with micro-organisms of all kinds. Why should we dissect and wash and douche, and so on? I have taken intestines and put them under a faucet and let the water run on them for twenty-four hours, and still the micro-organisms were there. The nurse may clean the uterus out two or three times a day, but I do not believe that it does any good. Many patients have died who would have lived if they had been let alone. I plead for the constitutional treatment by the elimination of the micro-organisms. If they are eliminated from the system then the patient will have a chance to get well.

CHRONIC INFLUENZAL BRONCHITIS*

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The following cases were selected as illustrating different phases of chronic influenzal bronchitis, so far as possible, and are presented with the hope that they will prove interesting and instructive to others. To me the recognition of these cases and the variety of clinical forms they may assume has been very helpful.

REPORTS OF CASES

CASE 1.—*Summary.*—Cough of four years' duration and for several years previous frequent attacks of influenza when patient would cough and expectorate for a time; chills and fever for several days at one period; diagnosis of tuberculosis; mild asthmatic attacks; diffuse bronchitis. There were no tubercle bacilli in sputum; in smears and cultures the influenza bacillus found to be the predominant organism.

History.—The patient, M. K., servant girl, single, aged 28, was first seen Sept. 14, 1906. Two cousins on father's side had died of consumption. One brother died with symptoms of miliary tuberculosis of the lungs during the summer of 1908. The patient had measles and diptheria as a child and pneumonia at the age of 13.

Present Illness.—For several years patient has had frequent attacks of influenza, during which she would be feverish, and would cough and expectorate for a time. During the early fall of 1905 she began to cough, with an attack much like those in the past. Since then her cough and expectoration have been continuous. During the spring of 1906 the condition became decidedly worse. She developed a fever, and during May had several chills and sharp pleuritic pains on both sides. There were no night sweats. About this time a diagnosis of pulmonary tuberculosis was made. The fever disappeared, but the cough and expectoration have continued. At times she has experienced a tight sensation in the chest and on several occasions she has had mild attacks of shortness of breath, somewhat resembling asthmatic attacks.

Physical Examination.—Patient was well nourished. The chest was fairly well formed, expansion fair and about equal on the two sides. The percussion note was perhaps slightly hyperresonant. At the right apex the breath sounds were relatively suppressed and expiration was a little prolonged. Coarse sonorous and some fine crepitant râles were heard at this apex. A few coarse râles were also heard throughout the chest. There was no friction rub. Heart seemed about normal; pulse 80; temperature 99.2. The sputum was tenacious and mucopurulent in character. A great many examinations revealed no tubercle bacilli. About 0.3 c.c. of sputum was injected into a guinea-pig subcutaneously and at the end of

* Read before the Milwaukee Medical Society, Jan. 25, 1910, and by invitation before the Racine County (Wis.) Medical Society, March 31, 1910.

several weeks autopsy showed no tuberculosis. In smears the influenza bacillus was seen to be the predominant organism, and these were isolated in cultures in the usual way. A good many other organisms were present, but the influenza bacillus distinctly predominated.

Course of Disease.—Patient has been seen at intervals during the past three years. Cough and expectoration continue, but as a rule both become much better during the summer months when she is out of doors a good deal. She feels well and on the whole has maintained her weight. Examination of the chest still shows evidences of a diffuse bronchitis.

CASE 2.—*Summary.*—Recurring attacks resembling influenza with asthmatic seizures during the past six years; present illness three weeks' duration; onset resembling influenza and followed a severe drenching; sputum somewhat resembling that of true asthma; influenza bacillus the predominating organism, obtained in culture.

History.—The patient, E. J. E., female, married, aged 27, works in a grocery store. She was first seen Oct. 8, 1906. The family history is good; no asthma or tuberculosis. The patient was healthy as a child; had pleurisy at 14 years of age; cystic ovary removed six years ago. Patient's first attack of asthma came at 20 years of age. This attack began with tonsillitis and was followed by bronchitis and a slight pleurisy. Since then she has had five other attacks. They usually began as ordinary influenza with first a coryza followed by bronchitis with cough and expectoration, and then the asthmatic seizures.

Present Illness.—This began about three weeks before the patient was first seen and followed a severe drenching. The next morning she had coryza and very soon there developed a bronchitis with much coughing at night and some shortness of breath, but not so much as in previous attacks. The patient was expectorating a tenacious sputum.

Physical Examination.—The patient was well nourished. The cervical glands on the right side were distinctly enlarged. The chest was well formed, not emphysematous, and examination revealed nothing beyond some coarse, wheezy râles heard on both sides of the chest. The heart was negative; pulse 76; temperature 99. The sputum was tenacious and mucopurulent in character. A good many grayish or opaque streaks and threads, some 1 or 2 cm. long were seen. Under the microscope these grayish streaks were found to be made up largely of cells, but in some of them there was a core of fibrin. No definite spirals were seen. A majority of the cells were found to be mononuclear eosinophils. In smears and cultures a practically pure culture of the influenza bacillus was found. It seems probable that this was an influenzal infection, associated with true asthma. This attack continued through most of the following winter. During the ensuing two years she is known to have had other attacks.

CASE 3.—*Summary.*—Duration of bronchitis eighteen years; began as an acute attack of influenza; several severe exacerbations since; bronchopneumonia two years ago; no hemoptysis; mild attacks of shortness of breath; expectoration rather profuse; bad odor of late; influenza bacillus the predominating organism.

History.—The patient, C. S., a married woman, aged 48, was first seen Sept. 14, 1908. The family history was good; no tuberculosis. The patient was healthy as a child; had inflammatory rheumatism at twenty years of age. At present she is quite nervous and is probably undergoing the menopause.

Present Illness.—This began with a severe attack of influenza eighteen years ago which confined her to bed for several days. Bronchitis has never disappeared since this attack. Since that time she has had several similar attacks with chills, fever and increasing bronchial symptoms. The most severe attack occurred during the winter of 1906. The patient was in bed for some time and it was several weeks before she regained her usual health. The attack was accompanied by pleurisy on the left side, and she almost certainly suffered from bronchopneumonia. The sputum is quite abundant, the amount usually ranging between half an ounce and 3 ounces in 24 hours. Frequently in the morning she coughs up dry crusts and during the past two years the sputum has had a bad odor. She has at times had rather mild attacks of shortness of breath, from which she gets relief on coughing up sputum, which may be tenacious or dry and crusty. Of late there has been some shortness of breath on exertion. She has gained 25 pounds in weight during the last two years.

Physical Examination.—The chest was large and fleshy, somewhat emphysematous. Nothing was made out except occasional râles scattered throughout the chest. The heart was a little enlarged, with a short systolic murmur at the apex. The pulse was slightly irregular, 80 per minute. The sputum was thick, mucoid, showing many grayish streaks and areas. One or two specimens showed crust formations, and with these there was a bad odor. There was no blood. On microscopic examination, many organisms were seen to be present, but they were made up almost entirely of two kinds of bacilli, both non-Gram-staining. One form had the morphology of the influenza bacillus; these were numerous and mostly extracellular. The other bacillus was larger and most numerous in the older specimens, especially where the sputum had assumed a greenish tinge. This was proved on culture to be the *Bacillus pyocyaneus*. The influenza bacillus, which was the most numerous organism present, was isolated in cultures. No tubercle bacilli were found.

CASE 4.—*Summary.*—Bronchitis for seventeen years; two attacks of pneumonia; bronchiectasis; often profuse expectoration; not foul; apparently slight hypertrophic osteo-arthropathy; marked clubbing of fingers; no tubercle bacilli in sputum; Moro tuberculin test negative; influenza bacillus the predominant organism.

History.—The patient, E. W., single, aged 18, clerk, was first seen March, 1907. The family history was good; no tuberculosis. A sister (Case 5 of those here reported) has had bronchitis for ten years. The patient was feeble as a child, and during his first year had several abscesses. He had measles, scarlet fever and diphtheria.

Present Illness.—The patient first began to cough when about one year of age and this had practically been continuous to the time of examination, with the exception of one summer when the patient was about 5 years of age. Cough was usually worse during the winter and spring months, and for several years the expectoration had been most profuse in the morning. There were no asthmatic attacks and no hemoptysis. Some fever had been occasionally present. Night sweats had been noted at times.

Physical Examination.—The patient was a slim, poorly nourished boy, with sandy hair and very distinct clubbing of the fingers. The chest was spare, rather long and narrow and somewhat emphysematous. At the left apex the breath sounds were a little louder and harsher and higher-pitched than on the right side. Over the back the breath sounds were rather feeble. A good many coarse râles were heard, scattered through the chest. No signs of cavity formation were made out. The heart was about normal; temperature normal. The sputum usually profuse, tenacious, greenish or yellowish in color; mucopurulent; odor not foul. Many examinations for tubercle bacilli have proved negative. In smears and cultures the influenza bacillus was readily demonstrated and was the predominant organism. There were also many pneumococci.

Course of Disease.—Jan. 2, 1910: During last winter patient had pneumonia on right side. He was sick for four weeks. For a time he spat up distinctly blood-stained sputum. Examination of chest this day revealed a condition much the same as when first seen. There was marked clubbing of the fingers, and the finger-bones and bones of the forearms were possibly now a little enlarged, suggesting a slight condition of hypertrophic osteo-arthropathy. On the whole the patient's general condition seemed to have improved somewhat. The sputum remained the same. No tubercle bacilli were found. The Moro tuberculin test was negative. A great many influenza bacilli with a few pneumococci and other organisms were still readily found in the sputum.

CASE 5.—*Summary.*—Cough of ten years' standing; onset with symptoms of an attack of influenza; continuous cough with gradually developing profuse expectoration; temperature at times; no hemoptysis; two attacks of pneumonia, the last attack unresolved and probably organizing, with abscess formation; elastic tissue in sputum; bronchiectasis probable; distinct clubbing of fingers; no tubercle bacilli; mixed infection, with the influenza bacillus predominating.

History.—The patient, O. W., a schoolgirl, aged 14, was first seen in March, 1907. The family history was good; no history of tuberculosis. One brother (Case 4 of those here reported) has bronchitis of seventeen years' duration. The patient was healthy and fat as a child; had chicken-pox and measles only, of the contagious diseases.

Present Illness.—Bronchitis began when the patient was 4 years old and dates from an acute influenzal attack during which she had cough, fever, general malaise and was confined to bed for several days. Following this attack, cough and expectoration persisted and were continuous up to the present time, usually somewhat better during the summer and worse during the winter and spring. Not infrequently during the winter and spring the patient would have attacks in which symptoms of bronchitis would be worse and she would have headaches, fever and general malaise. No sweating at night or bloody expectoration had been noted. After the onset of bronchitis, she was thin and poorly nourished. Expectoration was not marked at first, but gradually grew profuse. It was somewhat more abundant in the morning, but it was also profuse during the day. The sputum was usually greenish, but during exacerbations became more tenacious and mucopurulent. There was no bad odor.

First Physical Examination.—The chest was thin, long and narrow; somewhat emphysematous. There was general bronchitis as was made evident by coarse râles scattered throughout the chest. There were no signs of cavity formation. The heart seemed about normal. There was distinct clubbing of fingers. The sputum was examined many times for tubercle bacilli, but always proved negative. In smears and cultures the influenza bacillus was found to be the predominant organism. There were also a good many pneumococci.

Course of Disease.—Jan. 2, 1910: During the winter of 1909 patient had an attack of pneumonia on the right side, and was sick for about five weeks. The following summer she improved much in health and gained in weight. About six weeks before the date above she suffered another attack of pneumonia, this time on the left side. The process seems to have started at the apex and extended to the lower lobe. Some time after the onset, signs of a pleural effusion appeared but these have subsided almost entirely. The fever gradually disappeared but the consolidation had failed to resolve.

Second Physical Examination.—The patient now was weak and emaciated. The left apex and front appeared somewhat shrunken and the expansion was markedly deficient. Vocal fremitus was less marked than on the right side. Over the left apex the resonance was deficient, and from the third rib down became very distinctly dull. Dulness was also present over the whole back, but especially from the midscapular region down. At the left apex the breath sounds were suppressed while over the axillary region and from the midscapular region down there was distinct though distant tubular breathing. On coughing a good many fine and coarse râles were heard. Râles were heard also throughout the right side, though they were not nearly so numerous. Over the left base there was a small area where the percussion note was flat and the breath sounds practically absent. A soft systolic murmur was heard over the body of the heart, and the second pulmonic sound was accentuated. Pulse was 100, regular, of small volume; temperature, normal. The sputum was now abundant, tenacious, mucopurulent; no blood; no foul odor; small quantity of elastic tissue; no tubercle bacilli. In smears two organisms were especially to be noted, the influenza bacillus and the pneumococcus, and of these the influenza bacillus was the more numerous. There was perhaps a mixed infection.

I think it is impossible to say whether the pneumonic process was due to the influenza bacillus or the pneumococcus, though the character of the pneumonia points rather to the influenza bacillus. The presence of elastic tissue and the physical signs would indicate that there has been at least some abscess formation, with perhaps other portions which are unresolved, and very likely there is more or less organization going on.

CASE 6.—*Summary.*—Chronic cough for over twenty-two years; probable bronchiectasis; profuse recurrent hemorrhages for over twenty years; many members of the family suffered from chronic bronchitis; no tubercle bacilli; Moro tuberculin test negative; influenza bacilli in sputum in great numbers and in almost pure culture.

History.—The patient, Mrs. S., aged 53, housewife, has been under observation for two years. There is no tuberculosis in the family history but in the patient's immediate family chronic bronchitis has been prevalent. Both father and mother suffered for years from a chronic bronchitis, and of her seven brothers and two sisters all were troubled much in the same way. Patient has had ten children, and among these three or four have had frequent attacks of bronchitis. One child died at 19 months of some form of respiratory infection not tuberculous. The patient had most of the diseases of childhood. For a number of years she has been troubled somewhat with chronic rheumatism.

Present Illness.—This began over twenty-two years ago; there is no history of onset with a definite acute attack. Not long after the onset she was severely frightened, which started her to cough, and this was soon followed by a brisk hemorrhage from the lungs. At rather frequent intervals she has continued to spit up blood, sometimes as much as a tumblerful. Cough and expectoration have been continuous since the onset, but better during the summer and worse during the winter and spring months. The expectoration for a long time has been profuse and of late years has rather tended to increase than diminish. She often spits up four to eight ounces in twenty-four hours. As a rule she expectorates most in the morning. During the past two years patient has never been found with an elevation of temperature. There are no night sweats. She is fairly strong and active.

Physical Examination.—The patient is a thin, spare woman. The chest is emaciated and distinctly emphysematous. The breath sounds were well heard over the upper part of the chest, but somewhat deficient over the bases, particularly on the right side where there were also a good many coarse râles. Some coarse râles were heard throughout the chest. There were no definite signs of cavity formation. The heart sounds were clear and regular, pulse 90 to the minute, temperature normal. The sputum was tenacious, mucopurulent, yellowish or greenish in color, not infrequently streaked with blood. The odor was not particularly offensive. A great many examinations for tubercle bacilli have been made; all were negative. Smears and cultures showed practically a pure culture of influenza bacilli, usually in vast numbers. A few colonies of pneumococci also grew. The Moro tuberculin test was negative.

NATURE OF THE INFECTION

It will be noted that all the cases reported show other organisms than the influenza bacillus in the sputum. In some of the cases the influenza bacillus was so much more numerous than other pathogenic organisms that they could be considered a practically pure infection, while in others, though the influenza bacillus predominated, other pathogenic organisms were present in considerable numbers and it would be scarcely fair to consider these other than mixed infections. A mixture of organisms occurs practically in all cases of respiratory infection. The mixture usually occurs soon and may take place in the mouth, in the upper passages, or in the lesion itself. Later it may be difficult or impossible to determine the primary invader. When the infection maintains itself practically pure, however, there can be little doubt as to the responsible organism and in the mixed cases where one organism predominates it is easily possible that this germ was the primary invader, but in certain cases there may have been a mixed infection from the onset. It is well known that the influenza bacillus thrives particularly well in association with a good many other organisms.

It will be interesting in this connection to refer to the results obtained by Lord[1] in an examination of the

1. Lord, F. T.: Eleven Acute and Eighteen Chronic Cases of Influenza, Boston Med. and Surg. Jour., 1902, cxlvii, 662; Infections of the Respiratory Tract with Influenza Bacilli and other Organisms, Their Clinical and Pathological Similarity and Confusion with Tuberculosis, Ibid., 1905, clii, 537.

sputum of 186 patients. Of these, 120, or 64 per cent., were classified as mixed infections; that is, two or more organisms were noted in each specimen. Among the more important organisms identified were the influenza bacillus, *Micrococcus catarrhalis*, the pyogenic cocci, pneumococci and the *Bacillus mucosus capsulatus*. In 110 cases, or 59 per cent., influenza bacilli were present in varying numbers. In 66 cases one organism so far predominated that it could fairly be classed as a pure infection. Of these 66 cases of comparatively pure infection, the influenza bacillus was the infecting organism in 47 instances, the pneumococcus in 8, the *Micrococcus catarrhalis* in 5, and the *Bacillus mucosus capsulatus* and the pseudopneumococcus were each represented as a pure infection in 3 cases. It is well to remember that actinomyces and other members of the streptothrix group may in rare instances cause a chronic bronchitis.

These cases of chronic respiratory infection are undoubtedly important as sources of infection not only to themselves, as manifested by acute exacerbations, but also to those about them, as is well illustrated in Case 6, in which instance so many members of the family seem to have suffered from a like infection. The influenza bacillus is very easily killed outside of the body, and it must be in just such cases as these that the stock of these organisms is preserved, especially during inter-epidemic periods.

It is perhaps disappointing to know that the symptomatology of influenzal bronchitis, so far as present studies indicate, does not differ materially from that of chronic bronchitis, produced by other organisms. In Cases 1, 2, 3 and 5 the onset was with an acute attack of influenza. In the others the onset was, so far as we know, more insidious. This is the usual history in these cases. Doubtless in many of them a bronchopneumonia, more or less evident, is present at onset, and in this fact one may find an explanation for the persistence of the cough with localized or diffused bronchitis. In not a few of these cases, as is made evident at autopsy, the bronchopneumonia does not fully resolve. There has been perhaps a small abscess with destruction of tissue, and thus a pocket is left communicating with the bronchus, offering a favorable place for bacteria to persist and develop. These small cavities might or might not give physical signs. But a persistence of localized signs would suggest such a condition. There is frequently damage to the wall of the bronchus, and this may result in a condition of diffuse or localized bronchiectasis, which, as we know from autopsy-findings, is so often present in these cases, even though there have been no physical signs of such a condition. One may quite safely infer that all or nearly all of the six patients whose cases are reported would show at autopsy this condition, either diffuse or localized. Bronchiectasis may be very acute in its onset, and Lichtenstern believed that even after lasting weeks and months it may end in recovery.

Attacks resembling asthma were present in three cases. In Case 2 the asthmatic attacks were marked and the sputum resembled quite closely that of true asthma. It it quite certain that influenza may simulate closely or actually co-exist with true asthma.

The not infrequent occurrence of hemoptysis with these cases of bronchitis is worthy of note. The bleeding may be slight or profuse, and profuse recurrent hemorrhages may be present for over twenty years as in Case 6. The hemorrhage usually comes from a rupture of vessels in the hyperemic bronchial mucous membrane; doubtless, as in tuberculous cavities, fairly large exposed vessels may rupture spontaneously or on exertion or coughing.

Acute exacerbations, which often represent a bronchopneumonia or larger areas of consolidation, are not uncommon in these cases and are undoubtedly a constant source of danger. It may be difficult or impossible to determine accurately what organism has been the cause of the consolidation, but it is quite certain that the influenza bacillus is not infrequently responsible.

DIAGNOSIS

The question of diagnosis is perhaps the most interesting one that arises in connection with these cases, and it is their frequent resemblance to tuberculosis that makes it so important. It is not so much the case which has lasted for many years but rather the case that has persisted for from six months to two years, such as the first case reported, that suggests most this disease. The cough, the persistence of fever, night sweats, loss of weight, hemoptysis, elastic tissue in the sputum, local or diffuse signs of bronchitis or of consolidation or cavity formation, all, or any of which may occur, often strongly suggest the presence of tuberculosis. Yet such cases may be absolutely non-tuberculous, and we know that they are not so very infrequent. It cannot be doubted that many such cases have found their way to tuberculous institutions and have considerably swelled the percentage of recoveries. Several such cases have been observed and followed by Lord.

This should not happen so frequently in the future, as the majority of them can be differentiated, I believe, when it is possible to make careful and complete studies.

Knowing as we do that the above signs so often mean tuberculosis, however, it is frequently safer to give the patient the benefit of the doubt and treat them for that condition. But in view of the impossibility of making a positive diagnosis without finding tubercle bacilli, their presence should be considered the only infallible indication of tuberculosis. On the other hand, it is well not to be too eager to exclude it on the finding of influenza bacilli and no tubercle bacilli at first, as I have in several cases later found them. We know how very common it is for tuberculous patients to have attacks of influenza. Tuberculin may be used as a method of diagnosis and is particularly valuable when negative. A positive reaction might be due to a very slight tuberculous lesion, while the essential process was non-tuberculous.

PROGNOSIS

The prognosis in cases of bronchitis of years' standing, usually with bronchiectasis, is, as a rule, bad. Some of the patients, however, do recover, even after the condition has persisted for many years; but such cases are rare. Many patients, however, enjoy very good health and are apparently quite well with the exception of the bronchitis. It is not uncommon for them to show improvement for a time; usually they are better during the summer, and worse during the winter and spring months. With the cases of only a few weeks' or months' duration the matter is different, as the majority of the patients recover with proper management.

TREATMENT

The results of treatment in these cases vary much. In those of but a few weeks' or months' duration the patients usually recover more or less promptly if placed in a suitable environment. A change of occupation, if dusty or causing continued exposure, may be necessary. Usually a few weeks of out-of-door life in a warm, genial climate, if possible, is sufficient to remove the condition.

As a rule it is not necessary, and certainly one would not from choice, place these patients, when recognized, among the tuberculous. They could easily contract the disease and to associate or be classed with these patients would be in itself depressing and deleterious.

With the cases of many years' standing the treatment is often unsatisfactory and of little avail. An out-of-door life and other methods calculated to improve the general health are undoubtedly of more value than anything else. Inhalations and intratracheal injections have been used by some with distinct benefit. Boggs[2] refers to a case in which the patient was very much benefited by tracheal injections of 10 per cent. iodoform suspension in olive oil. Still the majority of these chronic cases continue their course, the patients being better in summer and worse in the winter and spring, regardless of what one is able to do in the way of medication.

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CONCOMITANT SQUINT WITH SOME REMARKS ON ITS ETIOLOGY AND TREATMENT *

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The etiology of concomitant squint was but ill understood until Donders' masterly work on accommodation and refraction of the eye was published in 1864. Many fanciful theories and guesses were advanced to account for the "evil eye," as the Italians called it, some even attributing the affection to the agency of the evil one, as the name "evil eye" implies; while others gave such causes as sucking of fingers, looking at the tip of the nose, or at a curl at the side of the head, imitating the cross-eye of a companion, etc. Such etiologic factors as the above were advanced by the laity, who then, as now, were only too ready to give explanations of things not understood. It must be admitted, however, that the members of the "learned profession" were able to give but little better explanation as to the cause of squint; hence the professional advice as to treatment so often given; for example, to let the child alone to grow out of the squint.

In a survey of the literature of strabismus up to Donders' time one is struck perhaps more by the depth of ignorance than by the extent of knowledge shown in matters pertaining to the pathology of squint. Indeed, until Donders' day but one plausible theory resulting in a rational method of treatment of the deformity had been advanced—the muscle theory.

I. THE MUSCLE THEORY

This theory considered the cause of squint as a strictly local one and as a defect in the muscle itself. The squint was considered as affecting but one eye. In convergent squint there was shortening of the internal rectus muscle; in divergent squint shortening of the external rectus muscle. The logical treatment, of course, was to cut the shortened muscle. Unfortunately the muscle was cut through the fleshy part and the good results expected did not follow the operation, the eye often squinting after the operation in the opposite direction to the previous one, and frequently to a greater extent. The muscle theory was faulty in two respects: first, in considering strabismus a local affection; second, in treating it as affecting but one eye; furthermore the refraction of the eye and the fusion sense were practically disregarded.

II. ACCOMMODATION THEORY

In 1864 Donders advanced his well-known theory of hypermetropia as a cause of convergent squint, and myopia as a cause of insufficiency of the internal recti muscles and divergent squint, owing to a disturbance in the relation between accommodation and convergence. This theory may be stated briefly as follows: accommodation and convergence are intimately associated in the act of binocular single vision. For example, the emmetrope, in order to see well in the distance, exercises neither accommodation nor convergence, the eyes being in a state of rest, the rays of light properly focused on the retina and the visual lines parallel. Such eyes, to see an object plainly at nearer distances, however, must exercise both accommodation and convergence. For instance, to see an object plainly at 1 meter, 1 D of accommodation must be used and at the same time 1 meter angle of convergence in each eye; to see an object at 0.5 meter, 2 D of accommodation and 2 meter angles of convergence must be used, the two functions increasing and decreasing in an equal ratio. In this way objects are seen distinctly and singly, the object being properly focused, the visual lines being directed to the object looked at, whether it be in the distance or near; that is, up to the normal punctum proximum or the near point of binocular single vision.

In hypermetropia, on the other hand, the accommodation must act in excess of the convergence in order that the subject may see objects distinctly and singly, even in the distance; for example, with hypermetropia of 2 D the patient must exercise 2 D of accommodation to correct the static refraction of the eye to see well in the distance, while the convergence remains in a state of rest, that is, with the visual lines parallel. For such eyes to see an object distinctly and singly at 1 meter the patient exercises 3 D of accommodation (2 D to correct the static refraction and 1 D for the dynamic) while only 1 meter angle of convergence is used; for such eyes to see distinctly at 0.5 meter 4 D of accommodation must be used while only 2 meter angles of convergence are required.

Owing to the intimate association between accomodation and convergence this excess of accommodation over convergence has a tendency to increase the convergence of the eye more than is necessary—in other words, to cause a convergent squint. As a strong contributing cause to convergent squint in these cases, Donders, following Buffon, mentions an inequality in the refraction of the two eyes. Especially if there is astigmatism in one eye, or opacities in the cornea, in the lens or in the vitreous, or lesions of the fundus of the eye, in fact, anything tending to reduce the vision of the eye more than its fellow, convergent strabismus is liable to result. As other contributing causes Donders gave the widening of the angle alpha in cases of hypermetropia, paresis of accommodation, etc. As regards the angle alpha and its influence in the production of squint, in the last two years I have given the subject special attention. In hyperme-

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2. Boggs, T. R.: The Influenza Bacillus in Bronchiectasis, Am. Jour. Med. Sc., cxxx, 902.

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* For considerations of space, a portion of this article is omitted from THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

tropia of like amounts, I have found the angle alpha as great in the non-squinting patient as in the subjects who squinted; or the difference was so little in favor of the non-squinters as not to be considered. In myopia, however, the angle alpha was relatively considerably less in the eyes of the patients who squinted than in those who did not squint, and may have borne some relation to the squint.

Why it is that not all hypermetropes have convergent strabismus I shall discuss later and compare and contrast Donders' accommodation theory with the fusion theory of Worth.

III. FUSION THEORY

In 1893, Worth, in his book on squint, advanced the theory of a defect in the fusion faculty as the essential cause of squint (convergent). Worth states that the eyes are controlled at birth and a few months thereafter by the motor coordination alone, which serves to keep the eyes approximately straight in the absence of any disturbing influence. By the sixth month the fusion center begins to develop and by the end of the sixth year is fully developed. Worth says further that "when the fusion faculty is fairly well developed neither hypermetropia or anisometropia or heterophoria can cause squint. In fact, then nothing but an actual muscular paralysis can cause an eye to deviate."

In support of his theory Worth cites many cases of squint in which he was able to get the patient early enough, in both years and time of onset; by training the fusion faculty he prevented amblyopia and brought about a cure of squint. In contrast to this class of cases he cites the cases coming under observation late in years as to the onset of the squint, in which the vision in the squinting eye was practically lost and the fusion faculty but very poorly developed, or quite lost, and in which no amount of exclusion of the fixing eye and training of the fusion faculty could prevent or cure the squint. As still further evidence and support of his theory he reports the cases, in the family of a squinter, of younger brothers and sisters whom he had the opportunity to examine as to their fusion faculty. In all cases in which the fusion faculty was well developed (106 cases) not a single case of squint occurred, but in those cases with "doubtful" fusion sense (thirty-seven) six squinted later, while in fourteen cases with fusion faculty very deficient eight afterward squinted constantly, and one other occasionally.

As contributing causes of squint Worth gives first rank to hypermetropia, and fully recognizes the influence it exerts in causing squint, but mostly as a contributing cause.

Other factors as contributing causes are mentioned, as anisometropia, congenital amblyopia, esophoria, specific fevers, violent mental disturbances, hereditary influences and, in divergent squint, exophoria.

COMPARISON OF DONDERS' ACCOMMODATION THEORY WITH WORTH'S FUSION THEORY

It may be stated at the outset that neither theory accounts satisfactorily for all cases of concomitant squint (manifest and latent); in fact, both theories combined fail to solve the question in some cases, when some of the contributing factors as above enumerated may be called into play to account for it.

In passing it may be said that the muscle theory has been almost universally abandoned; hence I shall not refer to it further.

DONDERS' THEORY

That excessive action of the ciliary muscle can produce dynamic convergence even in the emmetropic eye was long since demonstrated by Donders. By placing a negative lens in front of one eye and screening the other, and having the patient look at a distant object, the hidden eye was shown to converge when the open eye looked through the negative glass, the tension of accommodation in the uncovered eye looking through the negative glass being manifest through an excessive action of convergence in the eye that was screened. Also in hypermetropia, which requires an excess of accommodation relative to the convergence, there is produced a tendency to convergence in such eyes. Especially is this tendency to converge liable to be manifested if one eye is more hypermetropic than the other and for any reason the visual acuity is reduced more than in the fellow eye, because in such instances the secondary image can be very easily suppressed and the eye converged without causing annoying diplopia. Not only may it be demonstrated that tension of the accommodation, even by a negative glass, in cases of emmetropia, may cause convergence, but we have it proved in clinical experience now and then. For instance in cases of anisometropia in which there is a high degree of myopia in one eye and hypermetropia in the other, the myopic eye converges at times, and this convergence may be entirely relieved by placing the proper correction on the hypermetropic eye. I have had this occur in two instances. Krusius[1] in a recent paper on divergent strabismus in hypermetropia and the effect of mydriasis on it strikingly showed the effect of changes in the accommodation in producing or relieving squint. In one case he found, on instilling atropin into the left eye, that the squint in the right eye was relieved, but again became manifest when correction of the hypermetropia in the left eye was made. He attributed the effect of the correction of the squint in the right eye by atropin in the left to a strong impulse in the left eye to overcome the hypermetropia, which was transferred to the right eye as an associated motor movement, thus correcting the squint. This seemed to be borne out by the fact that when the use of atropin was discontinued in the left eye and the ciliary muscle could act, the right eye again diverged. Another case along the same line is that reported by W. Wessenberg.[2]

A man of 25 showed voluntary inward rotation of the left eye while the other remained in the primary position; the right eye + 1 D.. vision = 5/5. Left eye + 1.25 D., vision = 5/12. The voluntary squint was associated with accommodation of 4 to 5 D. and a — 4 D. was required for clear distinct vision of the right eye at such times, while squint did not take place in the right eye when it was used for reading, with + 4 D. glass.

It is often asked (and Worth dwells on this point) if hypermetropia causes squint why it is that not all hypermetropes squint? The reason is, as Donders pointed out, that, while the association between the accommodation and convergence is a close one, it is not a cast-iron fixed one. There is a certain latitude or amplitude, a dissociation, if you please, between the two; for example, a hypermetrope of 2 D can exercise 2 D of accommodation to correct static refraction when looking at a distant object and yet see it singly, though exercising no convergence whatsoever, or again when looking at an object 0.25 meter (10 inches) away can exercise 6 D

1. Krusius: Arch. f. Augenkr., lx, 272.
2. Wessenberg, W.: Abstr. in Arch. f. Augenh. (Knapp's), 1908, p. 106.

of accommodation and only 4 meter angles of convergence, and yet see the object distinctly and singly. If this were not so, everyone, except emmetropes, would be doomed either to squint or to see indistinctly. The extent to which accommodation and convergence can dissociate themselves in cases of ametropia has its limits, however, and, sooner or later, the subject must choose either indistinct but single vision in both eyes or distinct vision in one eye and convergence or divergence of the other.

The fact that the average degree of hyermetropia furnishes the highest number of cases of squint is not surprising either, for, as explained by many observers, the striving for both distinct and single vision is greater in such cases than in the cases of very high degrees of hypermetropia in which no amount of striving serves to secure enough accommodation to maintain distinct vision, so that the effort is abandoned and hence follows no excess of convergence or squint. Worth and others deny this and Worth gives statistics and tables to prove that the degree of refractive error has very little to do with the question of whether the patient shall or shall not squint in the first instance. He admits, however, that when the squint is once established the refractive error becomes a very important factor. Worth further states that moderate degrees of hypermetropia are more common than high, which of course is well known, but the same thing obtains in both squinters and non-squinters, and in fact is about the same; but he admits that most of the non-squinters who sought advice did so on account of headaches or visual defects. Why not admit, then, that those with moderate degrees of hypermetropia who did squint did so in order to escape headaches and indistinct vision by the act of squinting; that is, they sacrificed indistinct single binocular vision to comfortable clear vision with one eye? In fact, that is what really happens, as Donders asserts. We in America long ago realized the fact that patients with moderate degrees of error of refraction, especially when astigmatism is complicating, show more asthenopic symptoms than patients with very high degrees of error. The vast majority of hypermetropes who neither squint nor seek aid on account of asthenopic symptoms or faulty vision, have learned to associate their eyes in single binocular vision with comfort, though there is a disproportion in the accommodation and convergence. Another point often overlooked or forgotten is that, as Donders pointed out long ago, the amplitude of accommodation is greater for the same degree of convergence in hypermetropia than it is in emmetropia, and that this amplitude of accommodation is less in myopia than in emmetropia; and this again may account for some of these hypermetropes not squinting so readily, as the amplitude of accommodation comes in to save them from it. As Landolt[3] remarks:

> It would be putting a slight on Nature to assume that, incapable of creating only emmetropics, she had coupled accommodation and convergence in such a way that, instead of rendering the vision more perfect they would act only to disturb it. It may therefore be taken for granted, that in considering their intimate association the two functions must be independent of one another to a certain degree.

In turn, relative to the fusion theory of squint, it might be asked why every human being does not squint, soon after birth, if the straightness of the eyes depends on the fusion sense, since no fusion center then exists? Worth answers this question by stating that motor coordination powers of the ocular muscles serve to keep the eyes approximately straight until the fusion center begins to develop, and when this is fairly well-developed, he asserts, that nothing short of a paralysis can cause an eye to squint. Why may we not invoke the same agency, the motor coordination power, to account for the vast majority of hypermetropic eyes remaining straight?

In my opinion, for lack of a better explanation, we must give the inherent desire for single binocular vision in the human being as the stimulating force over the muscular coordinating powers, as a strong contributing factor in keeping the eyes parallel, certainly until the child is six months to one year of age, when there is no marked association between accommodation and convergence or any fusion center developed.

DIVERGENT SQUINT

As to the cause of divergent squint, invoking the accommodation and fusion theories to account for it, I shall give first Donders' own words on this subject:

> It is commonly the custom to apply the term squint exclusively to the absolute form. In this sense it is less frequent than strabismus convergens. And if, nevertheless, a certain number of cases, about equal to that in strabismus convergens, is to be explained by primary disturbance of the muscles (paralysis, inflammation, spasm, complicating congenital anomalies, etc., a blind eye also often deviates outward), myopia cannot occupy the same prominent position as an etiological element, that hypermetropia does in reference to strabismus convergens; nevertheless, in about two-thirds of the cases of *absolute* diverging strabismus, myopia was met with. But, if, on the other hand, we take relative diverging strabismus also into account, the diverging form is as frequent, if not more frequent than the converging; and now, moreover, the extraordinary causes, originally proceeding from the muscles or from blindness in one eye, fall into the background; therefore in at least 90 per cent. of the cases of *relative* diverging strabismus we find myopia.[4]

We see here that Donders takes into account not only the absolute (static) divergent cases which form a minority of the cases in myopia, but the relative (dynamic) cases of divergent squint, in which myopia is found in at least 90 per cent. of the cases. Furthermore, including the relative (dynamic) form of divergence with the absolute (static) form, they are more frequent than convergent squint. In myopia the accommodation is relaxed and indirectly the convergence is relaxed, and a tendency to divergence is established, dynamic or relative at first, but in the cases of progressive myopia this divergence often becomes absolute or static.

As is well recognized, other factors than that of accommodation enter into the eitology of divergent squint and Donders called attention to these; first, an original preponderance of the external recti muscles; second, smallness of the angle alpha; third the favorable form of the eye for outward movement.

Worth's fusion theory fails utterly to explain divergent strabismus, because divergent squint in myopia, as a rule, does not develop until between the seventh and twelfth years, when the fusion sense has been developed fully. Hence the divergent squint develops in spite of and in the presence of a fully developed fusion center. Worth gives such cases as apparent exceptions to his rule. If we take into account, however, the relative cases of divergent squint, they are very numerous, as Donders long since pointed out. In fact, this is the weak point in Worth's theory of a defect of the fusion sense as the fundamental cause of squint.

3. Landolt: Refraction and Accommodation of the Eye, p. 199.

4. Donders: Accommodation and Refraction of the Eye, p. 409.

ALTERNATING SQUINT

Although Donders did not attempt to account for alternating squint by the accommodation theory, this theory, in my opinion, may have some bearing on the squint, as will be shown later. Worth asserts that the fusion theory is the only one to explain these cases, and that in these cases there is a congenital absence of the fusion center. He states that the muscle theory can not explain it at all as there is no motor defect; and that hypermetropia can not cause it, as there is usually little refractive error.

I am aware of the fact that many of these cases have but little refractive error, the eyes being almost emmetropic or even, in some cases, myopic. The question, however, of what we call a little refractive error is a relative one. Worth[5] considers a hypermetropia of 1.75 D as insignificant, and a case in which glasses could be dispensed with. He also considers 0.5 D of astigmatism as normal. We, in America, correct much smaller errors of refraction than 1.75 D hypermetropia; also less than 0.50 D of astigmatism. It is significant, too, the number of cases of alternating squint that have hypermetropia in smaller or greater amount. In 229 cases reported by Worth himself, 196 had more than 1 D in the lowest meridian of one eye; and 176 of these 196 cases had 2 to 6 D, and the remaining 20 even higher degrees of hypermetropia up to 10 D. In looking over my case-books I find the vast majority of these alternating squinters had hypermetropia and that the squint was almost without exception convergent. May it not be that, in a certain number of these cases at least, the convergence and accommodation stood in a causal relation? If not, why should the eyes so often converge rather than diverge in alternating squint.

INSUFFICIENCIES, HETEROPHORIA AND LATENT SQUINT

Donders' accommodation theory accounts in a logical way for these. Worth's theory of fusion accounts for them not at all; in fact he asserts that latent squint and manifest deviations have an entirely different pathology, and that, while manifest deviations are due to a faulty fusion center, latent deviation, heterophoria, is essentially a motor anomaly. I do not subscribe to this doctrine at all. In my opinion latent muscular insufficiencies, in the main, have the same underlying cause as the manifest and in fact often become manifest. It is begging the question to say that where the latent divergence becomes manifest it is due to a defect in the fusion faculty, but not otherwise.

In order to reconcile and harmonize the two theories of squint, "accommodation" and "fusion," and to show that they are necessary one to the other in accounting for the complex of symptoms—loss of binocular vision, more or less complete; amblyopia, greater or lesser in the deviating eye; deviation of the visual axes; and suppression of the image in one eye—it is well to look at squint from a double viewpoint—the psychical and the physical.

The accommodation theory, while it gives to the fusion sense a secondary position, emphasizes the physical side of the squint; for example, (1) errors of refraction, especially in cases in which that error is greater in one eye than in the other; (2) opacities in the refractive media or lesions of the fundus enfeebling the sight in one eye; (3) the variation in the angle of the visual lines to the corneal optic axis of the eye—the angle alpha of Donders, or gamma of Landolt and later writers; (4) paresis of accommodation; (5) length of the eyeball; (6) anatomic defects in the structure or insertion of the straight muscles, etc.

The fusion theory emphasizes the psychic phase of squint; for example, (1) faulty development of the fusion sense, or the power to fuse the images of the two eyes into one, with the resultant loss of binocular vision; (2) the psychic phenomenon of suppression of the image of one eye, especially liable to occur when the vision in said eye is reduced from any cause, (this, however, may occur when the vision is perfect in each eye, when the fusion sense is supposed to be congenitally absent).

Since Donders' time the physical phase of squint has been well understood and treatment has been applied in a more or less rational way to relieve the symptoms. For example, the error of refraction has been corrected; cycloplegics have been used, though unfortunately most of them in an incorrect way (that is, in both eyes at the same time, for a long period); and operations have been performed for placing the visual axes parallel. Furthermore, for a great number of years the absence of binocular vision has been recognized as a great factor in causing and maintaining squint, and various methods to remove the cause were devised and used in a more or less satisfactory way. We owe much to Landolt, Priestly Smith, Javal and others for their work on strabismus; especially are we indebted to Javal for his teachings on the value of orthoptic exercises; that is, the use of the occlusion pad and the various stereoscopic exercises. In later years great credit must be given to Worth for his recognition of the great part the fusion sense played in the production of squint, and the importance he gave to it in treatment. He asserts, and justly so, that it is of supreme importance to treat such patients very early and during the development period of the fusion sense, between the ages of 3 and 5 years, if we are to prevent amblyopia in the squinting eye and maintain the eyes parallel. His advice is to begin the treatment of squint as soon as it appears; to use atropin in one eye only, the fixing eye, after the glasses have been prescribed, and to operate for the squint at any age, when the angle of deviation ceases to improve under orthoptic treatment. This is eminently sound advice and has done much to clear up this difficult question.

TREATMENT

The methods and measures used in the treatment of squint may be best considered under two general headings; first, non-operative or orthoptic treatment; second, surgical treatment.

NON-OPERATIVE OR ORTHOPTIC TREATMENT

The different measures of this line of treatment may be considered under the following headings: (1) correction of the error of refraction; (2) use of the occlusion pad; (3) the use of cycloplegics in the fixing eye; (4) stereoscopic exercises for training the fusion sense.

Correction of the Refractive Error

In all cases of squint the refractive error should be corrected under the influence of cycloplegics. If hypermetropia or hypermetropic astigmatism is present, as is most frequently the case in convergent squint, the astigmatism should be corrected in full, but not the hypermetropia. With very few exceptions, I have made a reduction of .25 to 1 D from the total of hypermetropia, depending on the amount of the total hypermetropia. In small degrees I reduce only .25 D; in the higher a larger amount up to 1 D.

5. Worth: Squint, Ed. 3, p. 144.

Most text-books direct that full correction be given in these cases. Worth's book is the one exception. Like Worth, I have found that full correction of the hypermetropia, by dimming the vision for the distance, exerts a bad influence on the squint itself, in fact, simply serves to increase the defect; for this reason I have long since ceased giving full correction of the hypermetropia in squint cases.

In cases of antimetropia the hyperopic eye should be corrected as in the cases in which both eyes are hyperopic, while the myopic eye should have full correction, if there is a small or moderate degree of myopia, and almost full in high amounts. If the vision in the myopic eye is very poor, not owing to refractive errors, a plain glass should be given for this eye. By simply correcting the hyperopia a convergent squint in the myopic eye is sometimes relieved. I have some such cases in my case-books.

The questions, first as to the age of the patient when glasses should be given, and second, the length of time after the onset of the squint, are still matters of much discussion among the profession. Worth asserts that no infant is too young to wear glasses should they be required, and he reports cases in which he has fitted spectacles on patients of the tender age of 4 and 5 months. I have never prescribed a pair of glasses for a child under 18 months of age. Like the great majority of my confrères I have deferred giving glasses to infants, depending on the use of the occlusion pad, and atropin in the fixing eye only, to hold the vision in the deviating eye until the patient was old enough, say 2 years old, to have glasses. In private practice parents strongly object to having glasses placed on an infant's eyes, and I have found it difficult to have glasses ordered at 2 years of age. In hospital practice patients are rarely ever brought to us before that age, and even here the American parents refuse to have glasses placed on infants. When glasses are ordered they should be for constant wear.

Use of the Occlusion Pad and Cycloplegics

In infants the occlusion pad may be applied to the fixing eye and held in position by a bandage. This is kept on during the day and removed at night. In older children the pad may be held in place by adhesive tape. This treatment is kept up for three or four weeks, when it should be discontinued and atropin 0.5 per cent. solution, instilled into the eye every morning. By paralyzing the accommodation in this eye, often the other eye will be used to fix with, first for near objects, then for distant, after a few days or weeks treatment. Then the atropin should be left out of the better eye for a week or two to see if the child will not use the eyes together. If the squint returns in the original eye, atropin must be instilled again into the fixing eye, until the other eye is used. This alternating of the squint from one eye to the other can be kept up by the use of the atropin in the fixing eye only until the patient is old enough to have glasses. In older children, whose vision can be tested by some method, as the ivory balls recommended by Worth, the occlusion pad is kept on the fixing eye from two to six weeks, when it is removed. If the vision in the originally squinting eye is not too poor, not less than 20/100, atropin may be used in the fixing eye. This is kept up until the patient can fix with the squinting eye. At first the patient fixes with the originally squinting eye for the near point, and with the atropinized (original fixing) eye for the distant point. After a few weeks the patient will fix both for the near and the distant point with the originally squinting eye, and squint all the while with the originally fixing eye. The patient, of course, is wearing glasses which correct the refractive error. After we have succeeded in making the patient fix for all distances with the squinting eye for some weeks, the atropin should be left out of the originally fixing eye. If the originally fixing eye continues to squint after the atropin has been removed from it, it may be necessary even to put atropin for a few days in the originally squinting eye, which now is the fixing one. We thus keep up the alternation of squint, by the use of the atropin, first in one eye and then in the other, in order to develop the vision and fixation in each eye and to place the patient in condition for the fusion treatment

Stereoscopic Exercises

Once we are able to use the stereoscope and to develop binocular vision in these little patients, especially to develop the fusion sense to the second or third degree—that is dimensions in the third degree—we have brought to bear a most powerful influence, the fusion sense, to correct the deviation and also to maintain the eyes parallel.

We are indebted to Javal for the first minute directions in stereoscopic exercises. Since his day there have been many others who have written much on this subject and devised many stereoscopes. Worth lays great stress on these exercises and asserts with Landolt and others, and justly so, I think— that they are of supreme importance in the cure of squint. The earlier begun the more efficacious they are, because the fusion sense is developed by the end of the sixth year, and to be of the best service these exercises must be begun and practiced between the age of 3 and 5, when the result is both satisfactory and brilliant. When undertaken after this age the result is slow to come and not very satisfactory, as the fusion sense is never able to be restored fully and binocular single vision seldom develops in the highest degree. There have been a few cases reported, however, in which binocular vision has been obtained long after 6 years of age. In cases of essential alternating squint these exercises are of little or no value, as the patient cannot be made to fuse the images, although in alternating squint the vision is perfect in each eye. Hence it is useless to waste time in trying stereoscopic exercises on such patients. Nor are these stereoscopic exercises of much value in cases of neuropathic squint.

In congenital squint stereoscopic exercises are of no use whatsoever. And, as pointed by our Chairman, Dr. Posey, in a paper[8] read before this Section three years ago, from the standpoint of treatment, the necessity of an early differential diagnosis between congenital and concommitant squint cannot be insisted on too strongly, for each manifestly demands different measures for its correction. Nothing but operative measures are of avail in congenital squint, hence the folly of subjecting these cases to amblyopic exercises.

OPERATIVE TREATMENT

Convergent Squint

In half to two thirds of the cases, convergent squint is not relieved by orthoptic or non-operative measures. The time to operate, both as regards the age of the patient and the onset of the squint, has been and always will be, I suppose, a matter of opinion of each surgeon.

8. Posey, W. A.: Congenital Squint, THE JOURNAL A. M. A., Oct. 26, 1907, xlix, 1428.

The general consensus of opinion is, I believe, toward early operative interference.

1. As to the length of time after the onset, I believe it is a good plan to operate just as soon as the angle of the squint ceases to improve with the orthoptic measures. Nothing is to be gained by waiting after this; in fact, much is to be lost. By surgical interference the eyes can be put relatively straight, when stereoscopic exercises can be used to greater advantage and often a complete cure results.

2. As to the age of the patient, rarely indeed will one be called on to operate on a child under 2 years of age, and seldom at that tender age. Orthoptic exercises as a rule suffice, up to the age of 3, at which time, or shortly after, stereoscopic exercises for fusion training can be brought into use, being followed by the operation when that shall be necessary. Occasionally in constant unilateral squint which does not improve, where there is false fixation, operation should be performed at 2 years of age, or even younger.

What shall the operation be, advancement or tenotomy? Here again opinion varies widely. Landolt for many years has advocated and practiced advancement almost to the exclusion of tenotomy, and he has many followers. He asserts that, (1) by advancement he strengthens the muscles operated on, while by tenotomy the muscles operated on are weakened; (2) the eye is thereby placed in a better position—that is deeper in the muscle funnel and for that reason the muscles can act more powerfully; and that the fields of fixation are actually widened in each direction, while in tenotomy just the opposite conditions prevail because of the weakening of the muscles and the unfavorable position by the dropping forward of the eye following the tenotomy: (3) in advancement no sinking of the caruncle occurs as in the case of tenotomy; (4) in advancement there is no overeffect with deformity, as often happens after tenotomy; (5) by advancement the check ligament assists the action of the muscle operated on, while in tenotomy the muscle is liable to retract far back on the globe of the eye, and the check ligament actually diminishes the action of the muscle itself.

Only in certain cases of insufficiency of the convergence and vertical deviations and in combination with the advancement operation in high degrees of squint, does he sanction or perform a tenotomy.

Tenotomy, however, has many advocates; in the first place, perhaps, because of the ease with which it can be performed; secondly, because it usually can be performed under local anesthesia; thirdly, because the patient does not have to remain in the hospital but a day or two; fourthly, if properly performed, there is but little danger of overcorrection and no sinking of the caruncle to speak of, or noticeable proptosis; fifthly, if an overcorrection does obtain the graver operation (advancement) can be done last and not first.

There are three classes of advancement operation: (1) freeing the tendon of the muscle and advancing same near the margin of the cornea, with or without resection of the tendon; (2) freeing the tendon, resecting it and reattaching it to the original insertion; (3) folding or knuckling the tendon without freeing it.

Of these three operations I prefer the first, especially in high degrees of squint. I practice what is termed the straight advancement operation. The conjunctiva and capsule of Tenon are advanced with the muscle and loop sutures are used to prevent cutting and slipping from the tendon of the muscle. The sutures near the cornea are deep enough in the sclera to hold firmly.

I never resect the tendon of the muscle as far back as the belly of the muscle. In other words, I leave part of the tendon to secure the muscle fibers together. Once the muscle tissue proper is cut into the muscle fibers pull apart into inequal bunches and atrophy to a certain extent and lack uniform action as a whole. It is the same as if we cut the end of a rope which had been plaited together and turned all the fibers loose, when we cut back into the belly of the muscle. It is bad surgery and very undesirable in my opinion. If enough effect cannot be obtained by double advancement without cutting into the belly of the muscle, then tenotomy of the opposite muscles should be performed. In the resection operation with reattachment at the original insertion to secure enough effect, resection must be made into the belly of the muscle, which, as just stated, is objectionable, and, besides, in these operations, we too often have under-effect and must resort to a tenotomy finally to get sufficient results.

The knuckling, or pseudo-advancement operation, in my opinion should be abolished altogether, except for insufficiencies. It is unsightly, not effective, and, without exception, tenotomies of the opposing muscles must be performed later, to secure sufficient effect.

Of all the methods of tenotomy I prefer that performed by Panas in which the muscle is stretched before the tendon is cut. By this simple procedure several of the objections to tenotomy have been removed. First, by stretching the muscle it is lengthened and temporarily paralyzed. This serves a double purpose. It prevents the retraction of the muscle too far back on the globe and accelerates healing by allowing the muscle to lie quiet against the globe through the temporary paralysis of the muscle. Furthermore, by its attachment further forward on the globe it indirectly decreases the liability of an over-effect which sometimes follows a simple tenotomy. No tenotomy should, in my opinion, be performed without the muscle having first been stretched. This stretching can be performed under a local anesthesia and with but slight pain. Following this stretching operation the converging power, in my experience, has not been greatly weakened. In those cases in which there is excessive weakness or there is an over-effect, advancement of the same muscle may be performed later, but this is very exceptional in my practice.

As to the sinking of the caruncle, this does not follow at all if the incision in the conjunctiva and capsule is made properly, that is horizontally with the tendon of the muscle. What wonder that there is sinking of the caruncle when we have the incision made according to the following directions in a recent leading text-book on squint!

> With the forceps pick up the conjunctiva over the insertion of the tendon, then, with the scissors, make an incision about one-third of an inch long in a direction at *right angles* to that of the tendon. It is not *necessary* or *advisable* to suture the conjunctiva unless the conjunctival incision is unusually long. [Italics mine.—A. E. D.]

It is unnecessary to state, I suppose, that after any operative procedure for squint, stereoscopic exercises should be practiced for a while to complete the cure and to reestablish single binocular vision, if that be possible.

As to our choice in the nature of the operation to be performed, advancement or tenotomy, we should be guided by the character of the squint and the effect to be obtained. Undoubtedly in the last few years the pendulum has been slowly swinging in the direction of the advancement operation in preference to tenotomy. I do not think, however, that we should be wedded to one

operation alone, either advancement or tenotomy, but should practice that operation which promises to give the best result. In convergent squint of low degree, advancement should be performed in most cases, while in moderate and high degrees the stretching (Panas) operation is preferable. If enough effect is not secured advancement can be performed subsequently. In divergent squint of myopia I now invariably perform an advancement operation on the low and medium degrees; and combine it with tenotomy in the high degrees.

Some operators[9] advise that operative measures should be directed to the internal recti muscles alone, as convergence is the function at fault in all cases of lateral squint. But this I do not consider a good practice, since, in my opinion, it is founded on a mistaken etiology of squint.

One authority, Bettremieux,[10] asserts that the fixing eye should be operated on first, and the deviating eye later, if necessary. This is bad advice in two ways; first, but one eye at a time is operated on; second, most patients, especially private, would seriously object to it.

Since, squint is a binocular affection, with very few exceptions, the two eyes should be operated on at the same time.

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ABSTRACT OF DISCUSSION

DR. NELSON M. BLACK, Milwaukee, Wis.: It would seem from the foregoing papers that none of the theories advanced can alone completely cover the etiology of squint, and that there is a marked interdependence of the Donders theory of associated hypermetropia and convergence with the Worth theory of non-development of the fusion faculty. The return of a squint in patients who have recovered perfect fusion with parallelism of the visual axes the instant their glasses are removed would tend further to indicate the relationship of one theory with another. My own experience in stimulating accommodation by use of excessive converging power, and, *vice versa*, the effect on convergence by using accommodation is that with a — 6.00 D lens before each eye, a card 10 by 20 cm., having a 6/VI line on it, is an oval white blur against a black velvet background at 6 m. distance. By strongly exerting my converging power, I can easily read the letters with either eye. When fixing with the right eye (in which vision is a little the better), there is a suppression of the vision of the left eye, and *vice versa*. The instant an effort to include both cards in the field is made there is an almost irresistible desire to fuse them. Repeating the process with one eye closed, the card appears as the same oval blur, then gradually the letters appear sharp and clear. On opening the closed eye, the cards are practically the same distance apart as in the first experiment. With the first test, however, there is a decided physical effort, probably that of convergence; while with the latter there is no appreciable effort, the eye gradually accommodates for the letters, and on opening the fellow eye the effect of the convergence is there. It is impossible in the first experiment with both eyes open to obtain any improvement in vision without making the effort to converge. From these experiments it seems to me that both the accommodation-convergence theory and the fusion theory have to be taken into consideration in the production of squint.

In these experiments clear vision was not obtained until either convergence or accommodation was exerted, resulting in a loss of fusion with a marked homonomous diplopia, and an almost complete suppression of the vision of the non-fixing eye. So, if there exists in a given case a certain degree of hypermetropia, and especially if one eye has better vision than the other, there is no chance for the fusion faculty to develop until the vision is corrected. The fusion faculty would have developed in all probability and have kept the visual axes parallel had it not been for the burden of accommodation it was necessary to exert.

We must give credit to Worth for having at least, through his fusion theory, developed the most rational method for treatment of concomitant internal strabismus. It is useless to attempt development of the fusion without the eyes under a cycloplegic, or the error of refraction corrected so that each eye will as nearly as possible send similar impulses to the fusion center. Again, the clinical results obtained by the various methods of developing the fusion faculty after correcting the errors of refraction have been such that no one at the present time would attempt to operate on the eyes of a child under 6 or 7 years of age with concomitant squint, without first finding out what change, if any, would be brought about by attempts to develop the fusion faculty—this, of course, together with the use of atropin in, or occlusion of, the fixing eye.

That it is futile to attempt orthoptic exercises in true alternating squint and in the squint of congenital amblyopia is absolutely true. We should, however, endeavor to be positive that we are dealing with these varieties before giving up orthoptic treatment. In the use of the amblyoscope and the different stereoscopic exercises it has been my experience that too frequent use of these exercises has not given the best results, for the reason that the child becomes tired of them if it has to go through them daily, and will not give its cooperation, which is very essential. Children soon learn what is required and will say that they see what is wanted of them as a result of suggestion. The best results have been obtained by having the little patients come to the office once or twice a month, or less frequently, as their interest in the game wanes, stopping immediately for a longer period if they show a lack of interest. While not by any means corrective in the sense of a cure of squint in older individuals, it has been my experience that binocular single vision and fusion has been obtained much more easily and quickly after operative measures by first teaching the patient what binocular single vision and fusion really are by means of exercises with the amblyoscope before operation.

DR. W. REBER, PHILADELPHIA: If Worth had insisted on our general acceptation of the dictum of a fusion faculty he would have had most of us with him all the way through; for that there is a fusion faculty in the majority of human individuals no one can deny; but whether there is or is not a fusion center is a presumption; it cannot be an assumption. Nevertheless, Worth's theory is the only theory that remains to us for any kind of an explanation of those cases (of which I have three) in children under six with very low myopic astigmatism and convergent strabismus. Donders' theory in the majority of cases is a good working theory, but it fails utterly in alternating ametropes who squint, and in myopic children who show convergent strabismus. There is something not yet explained in that complex automatic function which we so loosely call binocular vision. I believe with Dr. Posey that there is much in anatomic peculiarities, whether of the build of the muscle, of the insertion of the muscle or of orbital build in children with alternating strabismus. I believe that the combined theory, which will take account of Donders' theory, of Worth's fusion faculty and of the anatomic possibilities, will account for practically all cases except congenital palsies. I am convinced more and more every day that these last-named cases are more frequent than we have supposed. Heredity counts; it was traceable in 50 per cent. of a series of cases which I presented to the Pennsylvania State Medical Society six years ago. Amblyopia is a loose term. What is amblyopia? Shall it mean 5/40 or 5/15 or 5/20? As to obstetric injuries, Wolf and von Sicherer showed that of 100 children examined, 40 per cent. revealed some grade of retinal hemorrhage within three to ten days after birth. Consider the possibility of interruption to the development of binocular vision from this cause.

DR. G. C. SAVAGE, Nashville, Tenn.: Eyes with common brain-cell connection, and endowed with muscle equilibrium will never squint. Eyes with common brain-cell connection, but wanting in muscle equilibrium, will squint whenever op-

9. Ferri, L.: Ann. di Oft., 1909, xxxviii, No. 5; Ophthalmoscope, January, 1910.
10. Bettremieux: Clin. Ophth., Oct. 10, 1907.

portunity offers. I thoroughly believe in Donders' theory as to hyperopia being a cause of internal squint. Put the glasses on in some cases and the eyes swing straight; raise them, and they cross.

Dr. Davis has given credit to foreigners for practically everything he has said. To Americans the credit is due for the operative procedures that are worth while in the treatment of squint. Much credit to Worth for his teachings concerning the orthoptic treatment! All credit to Donders for bringing out his theory, which is correct, but only one factor. But all the operative procedures worth while have been carried out first in America and by Americans. The only advancement operation that is worth considering—the flat advancement operations, without cutting the tendon—was devised by an American, Lagleize, whom no one here has ever seen. All others pale into insignificance. To Stevens, of New York, is due the credit of turning men by degrees from complete tenotomy. Partial tenotomy associated with the Lagleize operation, if the latter does not straighten the eye, is the ideal tenotomy. The shortening operation, condemned by Dr. Davis, because he doesn't know it better, is the best operation. I am proud of it, because so many men in the United States want to claim it. The shortening operation is the ideal operation, and is safer and better than the Lagleize operation in the degrees of squint that do not demand the advancement operation. Do you want to know who devised it? "Ask the wild waves," and the answer will come back, "Savage."

DR. LUCIEN HOWE, Buffalo, N. Y.: We misunderstand each other and have such widely divergent views because of the terms we use. The first thing we need to appreciate is the vagueness of the term "squint." That may mean simply a deviation inward or outward. We also use the word "strabismus" without qualification and only understand that the eye turns in or out. Suppose we say convergent or divergent strabismus, or esotropia or exotropia. What does that mean? It indicates the direction in which the eye turns, but that is all. I think that the time is not far distant when we must go a step further and ask whether the eye turns in because of excessive action of the adductors, or because of insufficient action of the abductors; whether it is an active or a passive esotropia. I used to think that every case of turning in was simply excessive action of the abductors. But I have learned to take more time to study the cases before making a diagnosis. We should study such cases, not simply under atropin to obtain the refraction, but as to the excursion which the eye makes as seen by some form of the tropometer, or, still better, to ascertain the lifting power with an arrangement I showed last year; or, in difficult and important cases, it may even be worth while to photograph the swing of the globe. When we take the time to study our cases patiently and carefully, and to make exact diagnoses, then and not till then shall you and I know what we are talking about. We shall know then whether, in a given case, for example, we are dealing with an active esotropia or a passive esotropia. That will also answer the question whether in that case we should make teontomy or advancement.

DR. W. ZENTMAYER, Philadelphia: Dr. Black spoke of the fusion faculty in his own experiments. It seems to me we must make a distinction between the motor fusion faculty and the cerebral fusion faculty, and I have taken it for granted, although Worth is not entirely clear in this matter, that he intends to convey that a cerebral fusion faculty is at fault. In regard to Dr. Reber's cases of heredity, I would like to ask him whether the heredity factor was not the high degree of hyperopia? I also do not believe that Worth refers to a fusion center, but to a fusion sense. In regard to myopes having convergent squint, I believe the other causes of squint will clear this up without referring them to the group of fusion faculty failure.

DR. A. E. DAVIS, New York: In my paper I have said that it requires both theories (Donders' and Worth's) to account for all cases of squint, and I think it does without any question. Perhaps that is why Worth was looking around to find some of those exceptional cases that his theory would fit, as Dr. Zentmayer has just said. I wanted to give a reason to account for the general mass of cases. We have had all the other contributing causes in our experience which I have mentioned in my paper—false attachment of the muscles and other causes. As to giving credit to any nation or man or set of men, I think that science should be wide as the universe itself. I certainly did not want to quote foreigners exclusively—to be pedantic—but we cannot go back on our master, Donders. It is amazing how few advances in refraction we have had since Donders. He even used the ophthalmometer and made accurate measurements. We have advanced very little, so far as refraction is concerned, since his time. As to alternating squints, it is significant that a great number of cases can be accounted for by the accommodation theory; that is, if one will take the trouble to look over one's case book, one will find that perhaps 90 per cent. are hypermetropic. The tests in alternating squint show almost without exception that it is a convergent squint. Worth insists that this form of squint is due to the fusion faculty being at fault. I think he is mistaken in that. I do wish, however, to give Worth credit for his insistence on the early treatment of squint, the use of atropin in one eye alone, and not giving full correction of the spherical part of the error of refraction in such cases. I think he is right in all three instances.

CLASSIFICATION OF APPENDICITIS

AND THE RELATION OF CHRONIC APPENDICITIS TO OBLITERATION OF THE LUMEN, CARCINOMA AND DISTURBANCES IN THE GASTRO-HEPATICO-DUODENO-PANCREATIC PHYSIOLOGIC SYSTEM *

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The enormous amount of literature and the unsatisfactory discussions which have been evoked by the appendix, the numerous and varied classifications of inflammation in this anatomic vestige, the attempt to fit pathologic classifications of the subject to the clinical groups of cases and the varying opinions as to whether or not obliteration occurs as a physiologic involution or as the result of inflammatory reaction, and whether or not there is any etiologic relationship between the appendix and conditions in the stomach, duodenum and bile passages, have been the stimuli for this extensive investigation of such a common subject.

The object was not to combat any pathologic or clinical classification of the condition or theory of obliteration, but to confirm or disprove; to consider the subject in such a manner that the clinician and pathologist might better understand each other, and to bring to both a more intimate consideration of processes in nature rather than dogmatic ideas of pathology and clinical medicine.

The material consists of the appendices removed by Drs. W. J. and C. H. Mayo and E. S. Judd in St. Mary's Hospital, Rochester, Minn. The cases were taken in order of removal during the years 1906, 1907, 1908 and 1909. They were studied in three groups, namely: (1) appendices removed for appendicitis alone, (2) appendices removed during operation for other conditions in the abdomen, and (3) appendices removed from patients operated on for cholecystitis and cholelithiasis.

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

* A report on the pathologic examination of 5,000 specimens with a comparative study of the pathology and the clinical histories in 2,000 cases. The monograph of which this is an abstract will appear later.

In only 2,000 of the cases were the histories examined and compared with the pathologic findings. Of these 1,005 specimens were removed for appendicitis alone and 995 in conjunction with other conditions, such as fibroids of the uterus, carcinoma of the uterus, ovarian cysts, retroverted uteri, hernia, cholecystitis, "pyloric spasm," duodenal and gastric ulcers, etc.

In 5,000 cases, including the 2,000 with the histories, the specimens were examined especially with the idea of studying the reaction to infection of an organ which varies so broadly anatomically and is exposed to such a great variety of pathogenic organisms. During this examination notes, diagrams and photographs were made of the general inflammatory pictures found and the occurrence of obliteration, carcinoma, diverticula and foreign bodies.

The specimens, which had been preserved in 3.7 per cent. formaldehyd solution, were cut in gross series, the blocks ranging from 2 mm. to 4 mm. in thickness. The series was made from the tip to the base and each layer of the wall was studied grossly. All cases not showing definite gross lesions were examined microscopically by means of frozen and celloidin sections.

OBLITERATION OF LUMEN

The examination of this series of cases has shown that obliteration[1] of the lumen of the appendix may begin as early as the fifth year of life and be complete at the tenth year of life. The wide variation in the age during which the process of obliteration occurs may be seen from these facts, and that at the age of 67 the tip alone may be obliterated. Ribbert,[2] who has been the chief exponent of the physiologic involution-idea of the process of obliteration and the authority most commonly quoted, found that the percentage of obliterated appendices increased with the increase of the decades. This observation was made on autopsy material and is correct when one considers all stages of obliteration, including complete obliteration. From this standpoint his observations are confirmed by this series. The error, however, into which he and others have fallen is in taking all cases, partial and complete. It is impossible to determine at what age the process ceased to act in an appendix, the lumen of which is completely obliterated, because the individual may have carried it completely obliterated since the age of 10 years. Therefore it is only fair to consider cases in which the process of obliteration is not complete. If this is done it will be seen that the process does not increase gradually with the decades.

TABLE SHOWING PERCENTAGE OF APPENDICES WITH PARTIALLY OR COMPLETELY OBLITERATED LUMINA AT VARIOUS AGES

	Ribbert.	MacCarty.	
Age.	Partial and Complete Percentage.	Complete Percentage.	Partial Percentage.
1-10 years	4	0	11
10-20 years	11	3	17
20-30 years	17	8	16
30-40 years	25	15	22
40-50 years	27	16	17
50-60 years	36	17	21
60-70 years	53	50	50
70-80 years	58	0	0

The variation in the percentage of partially obliterated cases is greatest between the fifth year and the fortieth year. The percentage then decreases and rises again to the seventieth year. The same sudden rise is seen when one examines the totally obliterated specimens but the percentages between the fifth and fortieth years gradually increase instead of decrease. This seems to me to be strong evidence which may be added to the histologic picture of inflammation in obliteration.

The time at which the examination of the appendix is made greatly modifies the conception of the age at which obliteration occurs. The average age at which the tip is found to be obliterated in cases of appendicitis is 29.8 years and the average in the appendices which were removed at the time of operation for cholecystitis is 39.1 years. This is a wide variation and is parallel with the average ages at which operations for appendicitis and cholecystitis occur, namely, respectively 25.5 years and 39.9 years.

An examination of the average ages at which the different degrees of obliteration occur shows that the average ages of the increasing amounts of obliteration increases gradualy from 29.8 years—which is the average age for tip obliteration—to 34.6 years, which is the average age for total obliteration. The difference of four years between these two gives the approximate duration of the process of obliteration. This is exceedingly short for a natural physiologic involutionary process, especially when one considers that it may occur at a very early age and at any time from 5 years to old age.

It is fair, from these figures and others which time does not permit giving, to state that the process of obliteration is not a physiologic involution which begins at the tip and gradually involves the entire appendix, but a pathologic process, resulting from chronic inflammation.

CARCINOMA

The occurrence of carcinoma in such a large series is of interest. During this examination twenty-two cases of carcinoma were found. In seventeen of the specimens (77 per cent.) the diagnosis was not possible from the external appearance. In one of the seventeen the growth had made its way through to the serosa and was visible as a small orange-colored speck about 0.5 mm. in diameter. This on gross external examination was thought to be fat in the subserosa. Microscopic examination revealed it to be carcinoma which had reached this point through the lymphatics.

In none of the seventeen specimens was there any definite enlargement to indicate the presence of a neoplasm.

Ninety per cent. occurred in partially obliterated appendices and all were associated with marked chronic inflammation.

The growth itself on gross section appears as an orange-colored, homogeneous or finely granular mass occupying the center of the section, a quadrant or all of the coats excepting the muscularis, subserosa and serosa.

The color is characteristic in specimens preserved in formaldehyd solution. In all cases there was the same orange color. This is very important in distinguishing the neoplasm from lemon-yellow fat, which occurs in the submucosa and subserosa, especially in chronically inflamed or obliterated specimens.

Microscopically the growth consists of alveoli filled with epithelial cells, the nuclei of which are in general oval or round and present fewer irregularities than one usually sees in carcinoma in other portions of the alimentary canal. The size and lack of marked irregularity on the part of the nuclei, as well as the alveolar

1. In describing total obliteration of the lumen of the appendix in this paper it must be considered that a small part of the appendix was inverted at operation, and that "total" means the whole specimen in the laboratory.

2. Ribbert: Virchows Arch. f. path. Anat., cxxxii, 66.

arrangement and staining quality, have been the cause of some observers calling the neoplasms endotheliomata and basal-cell carcinomata.

If one, however, examines with the high power the nuclei of remaining glands in appendices the lumina of which are being obliterated it will be seen that there are gradations from simple hyperplasia to carcinoma.

There was nothing in the clinical histories to suggest carcinoma; in fact, one specimen was found accidentally in a man aged 80 years, who died after removal of a stone from the bladder.

Carcinoma occurred in this series as early as 5 years and as late as 80 years. Thirty-one per cent. of the carcinomata were found in appendices removed in association with other abdominal conditions. It occurred in females in 73 per cent. The longest duration of the symptom was fifteen years and the shortest duration was three weeks.

In the first 2,000 specimens examined it occurred in 2.2 per cent. of the partially or completely obliterated appendices and in 0.6 per cent. of all appendices.

In the complete series of 5,000 specimens it occurred in 1.6 per cent. of partially or completely obliterated appendices and 0.44 per cent. of all specimens.

DIVERTICULA

Diverticula of the appendix occurred, usually as a multiple condition, in seventeen cases. They are grossly visible but vary greatly in size, the largest in the series being about 0.5 cm. in diameter and projecting beyond the surface about 0.5 cm. They are covered by serosa and vary in color according to their contents. They consist of an evagination of the submucosa, muscularis mucosæ and mucosa through a hole in the muscular coats. The edges of this hole are rounded off and permit the tissue of the submucosa, which fuses with the subserosa, to pass around it in a well-defined manner. The wall of the diverticula consists only of the mucosa, muscularis mucosæ, submucosa, subserosa and serosa. These coats are thinner than normal.

The condition was found in a wide range of ages, the eldest 64 years and the youngest 18 years.

Fifty-six per cent. of the cases occurred in acute appendicitis; 56 per cent. occurred in females. The only cases that were found in association with other conditions were removed with gall-stones. Of these there were two, or 12 per cent. of the cases, which occurred with gall-stones. In one of these the appendicitis was subacute and in the other acute. The average duration of the symptoms was seven years and the average age at operation was 34 years. None of these patients gave a history of jaundice. Two complained of pain in the epigastrium and one in the right hypochondrium. The condition does not seem to bring about symptoms as early in life as appendicitis ordinarily does, but a higher percentage seem to be acute.

In regard to the question which has been raised in studies made by me on gastric ulcer[3] and cholecystitis,[4] that is, whether or not there is any etiologic relationship between the chronic inflammatory process in the appendix and disturbances in the stomach, duodenum and bile-passages, the following observations are of interest:

In the previous studies it was found that 23.2 per cent. of 365 cases in which cholecystectomy was performed showed symptoms which began at or under 25 years of age, and that 13 per cent. of the cases gave definite histories of pain or soreness in the region of the appendix. In 59 of these cases of cholecystitis the appendices were removed and 69 per cent. showed undoubted gross or microscopic evidence of inflammation varying from a chronic catarrhal condition to complete obliteration and periappendicitis.

In the present report of cases 52 per cent. of 175 cases of cholecystitis with or without stones gave histories of pain in the region of the appendix.

In 1,147 histories which include all the cases of appendicitis and appendices removed during operation for conditions other than cholecystitis with or without stones, there was a history of pain in the epigastrium or right hypochondrium in 13 per cent. In 9.4 per cent. there was pain in the abdomen and in 14.6 per cent. pain in the abdomen which radiated to and became localized in the appendix region.

A consideration of the average duration from the onset of symptoms to operation in appendicitis, cholecystitis and cholelithiasis reveals respectively 2 years, 4.9 years, and 6.5 years. It may be seen that the average duration in cases of cholecystitis lies between the average in appendicitis and cholelithiasis.

The questions arise: Is this a mere coincidence, especially when we know that simple cholecystitis precedes gall-stones? Is there any relationship between these conditions? Are we dealing with a process which manifests itself in three stages, namely, appendicitis, simple cholecystitis and cholecystitis with stones?

The average age of patients at onset of the symptoms in these three conditions is also of interest, although there is not the same parallel. In appendicitis it is 23.5 years, in cholecystitis 34.7 years, while in cholelithiasis it is 33.8 years. There is one thing to be considered, however, and that is the fact that the symptoms in cholelithiasis are likely to be very much more sudden and severe and therefore demand earlier attention than in simple cholecystitis.

There is a very marked contrast between the percentage of appendices with partially or completely obliterated lumina at autopsy and at operation for appendicitis and that of appendices which have been removed in association with cholecystitis and cholelithiasis: 23.5 per cent. at operation; 12 per cent. (Nowicki), 16.6 per cent. (Toft), 25 per cent. (Ribbert), 14 per cent. (Zuckerkandl), 22.6 per cent. (Sudsuki), 20 per cent. (Sprenzel), 11 per cent. (Ciechanowski and Gliniski)[5] at autopsy, and 52 per cent. in association with inflammatory conditions in the gall-bladder have partially or completely obliterated lumina.

Eight and seven-tenths per cent. of 2,000 appendices were associated with cholecystitis.

In spite of the fact that the male patients operated on for appendicitis formed a higher percentage than did the females (55.5 per cent. males and 44.5 per cent. females), partial obliteration of the lumen occurred more often in females (55.2 per cent. females and 44.8 per cent. males). This may be one of the coincidences which lead to false deductions in all statistics, but the figures are sufficiently significant to keep in mind as possible evidence of the probable fact that the inflammatory process in the appendix causes disturbances in the bile passages directly or indirectly and may have some relation to the fact that cholecystitis is decidedly more frequent in females than in males.

3. MacCarty: Surg., Gynec. and Obst., May, 1910.
4. MacCarty: Ann. Surg., May, 1910.
5. MacCarty: Virchows Arch. f. path. Anat., 1906, clxxxv, 504; Nowicki: Virchows Arch. f. path. Anat., cxcv, 197

Foreign bodies and hard fecoliths occurred in 57 specimens in the complete series. The foreign bodies consisted of short hairs, tooth-brush bristles, shot, gallstones, fruit-seeds, pins and worms.

CLASSIFICATION

An examination of the literature on the subject of appendicitis reveals a great variety of classifications of the condition. Many of these are based on pathology and clinical histories; some have been made by the clinician, some by the surgeon and some by the pathologist. In the literature these have been used indiscriminately to describe clinical, surgical and pathologic pictures, resulting in a confusion of ideas of the condition, especially on the part of the clinician and surgeon.

Intimacy with a large series of cases clinically, surgically and pathologically brings about a conception of appendicitis which is devoid of sharp clinical, surgical and pathological entities. The conditions are apparently the results of a process dependent on the peculiar structure of an anatomic vestige, its precarious situation and exposure to many pathogenic organisms and trauma.

The results of these and perhaps other obscurer and less defined etiologic factors group themselves according to the point of view. To the clinician who sees only the exterior of his patient and studies the reaction of the whole organism to the local condition from the standpoint of fever, chills, pain, nausea, vomiting and onset of the symptoms, the condition is one which confines itself either definitely to the appendix or to possibilities of which the appendix is but one. If confined to the appendix four conditions are possible, namely, acute, chronic and subacute appendicitis or periappendicitis, the latter being the result of one or more of the other three.

To the surgeon, who is interested in the real pathologic condition secondarily to his immediate mission, the removal of a condition detrimental to life, the appendix on exposure may reveal its exact pathology on a careful study of its exterior. To him the most important conditions in their order of importance are: acute periappendicitis, peritonitis, acute appendicitis, chronic periappendicitis, subacute appendicitis, chronic catarrhal appendicitis, complete or partial obliteration and carcinoma.

To the pathologist the classification of the conditions found is similar to that made for the surgeon, but includes the acute catarrhal condition, which is rarely if ever seen in the strictest sense. It is difficult to obtain a specimen in which the term "acute catarrhal" can be correctly used unless the term be extended beyond its real meaning and be allowed to include the extension of the process in the mucosa to the underlying submucosa, lymph follicles, and even through the lymphatics to the subserosa. The extension of the condition is so rapid when the process in the mucosa is acute that it is difficult to conceive of it being confined to the mucosa, which the name signifies.

It may be well, however, since the term has become so well established in our nomenclature to continue its usage with the modification that although the process has its origin in the mucosa, the submucosa and follicles share very early in the reaction. Indeed, the serosa may be congested without the wall showing enough leucocytes to cause the condition to be called purulent or necrotic.

With this broad idea of the term catarrhal the specimens in this series group themselves under the following terms:[6]

1. *Appendicitis Catarrhalis Acuta.*—A condition in which the mucosa is infiltrated with leukocytes and is congested; there is a reaction in the lymph follicles and lymphatic tissue of the submucosa. The lymph spaces or vessels in all the other coats may also contain leukocytes.

2. *Appendicitis Catarrhalis Chronica.*—Arises as a result of repeated mild or severe acute catarrhal conditions and is marked by an increase of scar-tissue and distortion of the normal regularity of the coats and the glands. Blood pigment is very frequently present in the mucosa.

3. *Appendicitis Purulenta Necrotica.*—An advanced stage of the acute catarrhal condition, plus the formation of intramural abscesses and necrosis.

4. *Periappendicitis Acuta.*—Merely describes an extension of the conditions just described to the peritoneum. The subserosa and serosa become congested, purulent or necrotic. The scar-tissue remains of such a condition may be described as *periappendicitis chronica.*

5. *Obliteration.*—A condition of the lumen of the appendix which occurs as the result of destruction of the mucosa and formation of scar-tissue in the submucosa and other coats. It occurs in any portion of the lumen.

CONCLUSIONS

1. Of all appendices removed at operation 23.5 per cent. are partially or completely obliterated.

2. The shortest duration of the process of obliteration when it is continuous is less than ten years.

3. The process may be complete at 10 years of age.

4. Obliteration does not occur as a physiologic involutionary process, but is dependent on a definite inflammatory reaction.

5. In a series of 2,000 specimens 0.6 per cent., or about 1 in every 175 appendices removed at operation are malignant.

6. In a series of 5,000 specimens 0.44 per cent., or about 1 in every 225 appendices removed at operation are malignant.

7. In a series of 2,000 specimens 2.2 per cent., or about 1 in every 40 partially or completely obliterated appendices are malignant.

8. In a series of 5,000 specimens 1.6 per cent., or about 1 in every 53 partially or completely obliterated appendices are malignant.

9. Carcinoma of the appendix may occur as early as 5 years of age and as late as 80 years of age.

10. Of the carcinomata of the appendix found in this series 77 per cent. were not capable of being diagnosed from the gross external appearance.

11. All appendices with partially or completely obliterated lumina should be removed during operation for other abdominal conditions when it can be done without materially endangering the life of the patient.

I wish to express my appreciation of the valuable assistance rendered me by Bernard Francis McGrath, M.D., laboratory assistant.

ABSTRACT OF DISCUSSION

DR. H. G. WELLS, Chicago: I should like to ask Dr. MacCarty what are his views as to the histologic type of carcinoma present in such cases.

DR. J. F. HULTGEN, Chicago: Dr. MacCarty's paper suggests to me strongly the anatomic basis of the biology of infection of the gall-bladder and appendix. The question of appendicitis is not merely of bacteriologic, but also of biologic interest. I should like to know whether Dr. MacCarty means that this

6 MacCarty: Virchows Arch. f. path. Anat., 1906, clxxxv, 515.

atrophy of the lymphoid tissue is accompanied by atrophy of the muscular tissue and by destruction of the agminated lymph-follicles and Peyer's patches? Does this very atrophy of the glandular elements not rather suggest the natural tendency toward healing of appendicitis?

DR. W. C. MACCARTY, Rochester, Minn.: In the very early neoplasms which are reported here the growth extends only to the musculature, and in these specimens there is an alveolar arrangement of the cells. There is a marked resemblance of the tumor to an endothelioma. The nuclei do not take the stain well, the protoplasm is clear and the cells have been described as endothelium.

If one examines the epithelial rests in appendices the lumina of which are being obliterated, it will be seen that there are all stages of hyperplasia and that these tumor cells really are the outgrowth of the normal epithelium of the mucosa. They differ greatly from the epithelium in other portions of the alimentary tract. Just how malignant they are I cannot say.

I think that most pathologists and physiologists to-day agree that there is no such thing as a physiologic disappearance of the appendix. The men we should be anxious to reach are the surgeons who are constantly dealing with the appendix, and who are leaving partially and completely obliterated appendices because they think them physiologic and not pathologic. The condition, however, is the result of an inflammatory process and is apparently a forerunner of carcinoma, as may be seen from the fact that 90 per cent. of the carcinomas occur in partially or completely obliterated appendices.

I have had twenty-two specimens of carcinoma of the cecum, and they did not, apparently, arise in the appendix. This is to be expected when we realize that the majority of the carcinomas of the appendix occur in the tip and give rise to symptoms of appendicitis before the cecum becomes involved. Some carcinomas of the cecum, however, may arise in the appendix. Elting has reported cases in which carcinoma of the cecum followed carcinoma of the appendix. All of the cases of carcinoma of the appendix in my series were very early and recognizable only after gross section of otherwise apparently normal appendices or subacute appendicitis.

THE TEETH AS AN IMPORTANT FACTOR IN PATHOGENESIS *

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My object is to call the attention of physicians and dentists alike to the importance of further study and preparation for work in a field which has no hard and fast boundaries but which is widely overlapped by both medicine and dentistry. Because of the diverse relations of medicine to dentistry and dentistry to medicine it is important that the dentist be versed in general medicine; also that the physician be conversant with more of the general conditions which make up the specialty called dentistry, which has been known as a profession apart from and unconnected with medicine. It is necessary that the practitioner, whether he be dentist or physician, should understand the etiology and pathology as it pertains to the case in hand, a living pathology, as it were. Only this condition permits of the practice of logical therapeutics.

The teeth, during the entire life of the individual, play an important rôle, both directly and indirectly, in the maintenance of health and in the production of disease, and any deviation from the physiologic may give rise to pathologic conditions affecting the general economy.

The chief functions of the teeth are, first, mastication of food in order that the digestive juices may properly effect the changes necessary to absorption and assimilation; second, molding and maintenance of facial contour.

Pathologic conditions, due directly or indirectly to the teeth, occur before the eruption of the temporary teeth, during their eruption and after eruption, and also during their loss, in giving place to the erupting permanent teeth. The immediate pathologic conditions caused by unerupted temporary teeth are very few, but the remains of the primary tooth germ may give rise to cyst formation before the development of the follicles of the permanent teeth. Congenital epulis has been observed, the microscopic examination showing the tumor to be of dental origin. The diseases, the cause of which has been attributed to the eruption of the temporary teeth, are legion, but their number is being steadily reduced by the scientific work of skilled pediatricians. There are, however, some conditions which may be traced directly to difficult dentition and others in which it occurs as a coincidence. Nevertheless, the erupting teeth do modify the course of the disease, rendering the primary condition much more difficult to cope with. The chief danger lies in the fact that, because the child is "teething," no further search is made for pathologic conditions which may exist in brain, kidneys, gastro-intestinal tract, lungs, etc. Without doubt, difficult dentition gives rise to reflex symptoms, some of which may become alarming, especially in undernourished or rachitic children.

The fully erupted temporary teeth are subject to the same conditions as those which affect the permanent teeth, and give rise to a long chain of pathologic conditions. Normal teeth, with live pulps, rarely give rise to symptoms referable to the pulps themselves, but when caries attack them the pulps are irritated by chemicals, sweets, changes of temperature and pressure from the food substances, with resulting toothache, which may cause reflex earache. Many a child has spent a sleepless night on account of an irritated tooth-pulp. As the result of carious teeth and exposed pulps the child becomes ill-nourished, because he will not masticate his food, thereby laying the foundation for gastro-intestinal trouble in the future.

Of more importance is the retention within carious cavities of decomposing foodstuffs, and bacteria which are not of the disease-producing types, namely, bacteria of putrefaction. The final products of such bacterial activity are absorbed by the buccal and pharyngeal mucous membranes, as well as swallowed, and the dire results are seen in gastro-intestinal disease, malnutrition and lack of physical and mental growth.

Cervical and general lymphadenopathy are undoubtedly due many times to absorption of toxins, which may be found anywhere within the body. Not only do carious cavities harbor non-pathogenic bacteria, but pathogenic ones as well, and from this depot they are disseminated, gaining entrance into the organism through the apices of the roots, abraded mucous membranes, tonsils, gastro-intestinal tract and lungs. Arthritis, affecting any or all joints of the body, may be caused by infection harbored by the teeth or caused by pathologic diseases of the teeth.

The blind abscess, or carious process affecting the bone at the apices of the roots, or the chronic one with a fistula, or pyorrhea, is not benign, even though the patient suffers little from it, because a complete or par-

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

tial ankylosis of any joint, especially the larger ones, may result from it.

There are many complications and sequelæ following the death of a tooth-pulp. Foremost is the formation of an alveolar abscess, which is essentially an osteomyelitis, and which requires exactly the same surgical treatment as osteomyelitis in other parts of the body. Alveolar abscess without death of the pulp is extremely rare, although at times root abscesses are seen. Alveolar abscesses may be acute or chronic. With the acute form we have pain, swelling, more or less trismus, with cervical adenitis, which may or may not go on to suppuration. After the pus has broken through the periosteum it burrows in the direction of least resistance and may make its appearance anywhere on the lower part of the face, or neck, and at times at the clavicle. Not infrequently a secondary infection with streptococcus gives the clinical picture of a Ludwig's angina. If the periosteum of the jaw is elevated from the bone for a sufficient length of time, necrosis, with loss even of the whole jaw, results.

Without doubt the extraction of a tooth which gives rise to an alveolar abscess it at times contraindicated, and extraction only intensifies the result of the infection. The reason is given by the conditions requiring surgical interference which exist in other parts of the body, namely, abscess formation which cannot be aborted. By that is meant that the infection may be overcome by the vital forces of the body in destroying the bacteria and rendering their poisonous properties inactive; but that when this cannot be done the indications are that the source of infection be eradicated and drainage established. Very little absorption takes place without pressure. If, in the effort to eradicate the source and establish drainage, the operation is improperly done, the process contiuues and is more wide-spread because of the traumatism to the parts. This is what happens when a tooth is extracted at the height of infection and before the formation of pus. The source of infection may be removed, but drainage is not facilitated, and the traumatized tissues are more susceptible. After the formation of pus, extraction facilitates drainage through the socket because of the destruction of tissue at the apex, and this cavity communicates with the socket.

The chronic form of abscess may result from an acute one, or it may never exhibit acute symptoms. Either the organisms have become attenuated or are of the very mild type. The process ends in a fistula, which may open within the mouth or on the surface. Chronic intoxication, with anemia, gastro-intestinal disturbances and chronic cervical adenitis or rheumatism, may result. This condition continues until the source of infection is eradicated.

After the crowns of temporary teeth have been destroyed by caries the roots form receptacles for retention of putrefactive substances. Their rough surfaces often abrade the tongue and soft parts, thereby causing infection atria, not only for the pus cocci, but for tuberculosis and other infective granulomata as well. Microscopic examinations of the tongues and mouths of cattle frequently show abrasions, especially at the base of the tongue, which contain the ray fungus. Normally the temporary teeth retain their live pulps until they are replaced by permanent ones. The roots of temporary teeth whose pulps have died are not as readily absorbed, and such unabsorbed teeth deflect the permanent teeth from their normal course, with the resulting irregularity which is so disastrous. Not only should the pulps of temporary teeth be kept alive, but the crowns should be retained. If caries occur the normal contour of the crown should be restored. Otherwise, when the permanent teeth make their appearance, the arch is so contracted that there is no room for them, and the result is irregularity and malocclusion, with perverted facial contour, high or saddle arches, with coexisting adenoids, mouth-breathing, lack of mental and physical development. The loss of temporary teeth, whether from caries or by extraction by the ignorant or unscrupulous, results most certainly in the foregoing conditions. So much for the temporary teeth.

Much which has been said regarding the temporary teeth applies as well to the permanent teeth, but there are other conditions which should be recognized by physicians and dentists as having their origin in the permanent teeth. Before eruption the teeth give rise to cysts and tumors, the part of the tooth from which it springs determining the character of the growth. Follicular cysts may contain any or all of the anatomic parts of the teeth. Follicular cysts usually make their appearance between the twelfth and the sixteenth years, corresponding to the tooth development, although they may occur in infancy, having developed from the follicles of the temporary teeth, or, later in life, not infrequently from the third molar. The most frequently occurring cysts of the jaws are the root cysts. These develop from the granulomata at the ends of the roots, whose pulps have been destroyed through caries and exposures. The cystic formation is due to epithelial development, which is stimulated by the chronic infection about the apices of such roots, the epithelial development having its origin in the remains of the epithelium which dips down from the mucous membrane of the gums to form the tooth germs, the epithelial débris of the French. It is these cysts, usually of slow growth and without symptoms, which, by pressure-atrophy of the bone, advance and encroach on the facial sinuses and on the nasal fossæ, even occurring in the roof of the mouth or filling out the maxillary sinus, and known as hydrops of the antrum of Highmore. At times pressure on nerve-trunks causes neuralgia, but this is rare, neuralgia being caused more frequently from hard growths. They never contain tooth elements.

Multilocular cysts and the benign solid epitheliomata belong in the same class, the multilocular form springing from the enamel organ, the others being a development of one or all of the individual elements of the tooth follicle. They present the following forms: embryoplastic, odontoplastic, coronary, radicular, compound and heteroplastic odontomata. Further, we have, at times, hard tumors of the tooth substance which are attached to the other teeth. All of these cysts and tumors produce symptoms and signs relative to the site of their development and interference with normal function. But, aside from these, any of them may become infected. In such a case it may be difficult to arrive at an exact diagnosis, which is the key to surgical relief. Non-erupted teeth may or may not give rise to symptoms referable to local conditions or to remote parts. Not infrequently fully formed teeth lie in cystic cavities whose whole walls are of connective tissue instead of epithelium. They may occur near the normal arch or in parts somewhat remote, as entirely within the antrum of Highmore, or high up within the ramus, or they may be projected through the mandible. When near the arch the roots of other teeth are frequently eroded and their vessels and nerves encroached on, causing neuralgic

pains. Often the larger nerve-trunks are pressed on by them, giving rise to severe neuralgia.

Non-erupted teeth cause other troubles the importance of which cannot be overestimated, namely, reflex disturbances referable to almost any of the cranial nerves, also taking in a much wider scope, namely, that of impaired mental conditions. Given a patient of a neurotic family, with poorly balanced nervous mechanism, having epilepsy, chorea, habit spasm, etc., it is plain that irritation, even of a mild but continuous character, will exaggerate the symptoms of the primary trouble. Further, the irritation of unerupted or impacted teeth at the changes in the cycle of life will produce more of an effect on the organism than when no great changes are taking place. Upson, of Cleveland, has recently made a study of fifty-eight cases, including manic-depressive insanity, dementia praecox, psychosis, insomnia and neurasthenia, thirty of the patients having impacted teeth. Forty-two patients were operated on; fourteen recovered; seven are convalescent; twelve improved; three unimproved; six, no data. This work opens up a rich field for research and promises great benefit to the sadly afflicted patients. I might add, in this connection, that my experience in operating on insane patients at the Illinois Central Hospital for the Insane, especially those who had been insane for a long time, seems to warrant a belief that any operation on them results in a temporary brightening of their mental faculties.

Sapremia, as the term is used in surgery, is the absorption of poisonous products from bacteria in wounds of the body. It matters not how these poisons are absorbed, whether from a wound, by the mucous membrane of the mouth, or alimentary canal. The bacteria of putrefaction act on nitrogenous substances which lodge in tooth cavities, and their toxins are liberated in the mouth and are either absorbed or swallowed. Thus the patient is a victim of slow ptomain poisoning or, if you please, leukomain poisoning.

Of the myriads of bacteria found in the mouth, only a few can be said to be indigenous. Professor Black has reduced their number to about fifteen different varieties, all practically non-pathogenic. All others have been introduced with food and drink or have been aspirated and, as a rule, are not long retained within the mouth. This speaks for the practicability of prophylaxis and cleanliness. The colon bacillus, paratyphoid, *Micrococcus lanceolatus*, with the putrefactive bacteria, are productive of most of the toxins which are injurious to the organism. The pathogenic bacteria are also retained in an unclean and carious mouth and are a constant source of danger.

Atrophy of the teeth occurring in the central incisors, in which there is a lack of development of the middle lobe and a closing in of the other lobes, possibly an effort of Nature to fill in the space, was first pointed out by Hutchinson, of London, but he unfortunately ascribed the cause to congenital syphilis alone. This theory was taken up by clinicians and medical writers and has been handed down in one text-book after another until it has become so rooted in medicine as to be well-nigh impossible of change. Congenital syphilis may be the cause of Hutchinson's teeth, but it is not the sole cause, as they may be caused by any condition which seriously impairs metabolism at the time when this part of the tooth is in the process of calcification.

Normally shaped teeth appearing normally in a normal arch, unaffected by caries, give rise to no pathologic conditions. When they are affected by caries they give rise to the same conditions as described under caries of the temporary teeth. Malocclusion gives rise to many deplorable conditions which could have been avoided had the mouth been in the care of a competent dentist, especially at the time of eruption of the sixth-year molars. The cusps of these four teeth when in proper relation with each other retain the jaws in normal relation with each other, being reenforced by the other teeth as they appear. But when these cusps are not in proper relation with each other malposition and malocclusion are exaggerated as time goes on, with resulting prognathism, agnathism and faulty facial contour due to lack of development of the bones of the face and nose. These teeth, coming in before the child has lost any of the temporary teeth, are often mistaken for temporary teeth and, through deplorable ignorance, are allowed to be destroyed by caries, the popular opinion being that they are temporary teeth and will soon be lost, and there is no necessity for having them filled.

Malocclusion interferes with normal function of the teeth, and when that function is interfered with, the teeth, the interdental spaces, peridental membranes and all the tissues, hard and soft, in relation with them, become a prey to pathologic processes, namely, caries, loss of contact with impaction of food, pyorrhea alveolaris, calcareous deposits, recession of the gums, and absorption of the alveolar septum.

Impaction and complications following occur frequently in connection with the third molars below. Above, the third molars are often inclined outward and backward and, in consequence, the mucous membrane becomes abraded, food is also retained behind such teeth and fermentation or putrefaction follows. Impaction of the third molars may be of various degrees. It may occur entirely beneath the gum, or the tooth may be only slightly wedged behind the largest diameter of the crown anterior to it. When it is entirely beneath the gum, the roots of the second molar are often absorbed and pressure on the pulp causes pain. Even before this the pressure from crowding may cause severe neuralgia or grave reflex disturbances, resulting, as has been seen, even in dementia præcox and psychosis. If the third molar breaks through the mucous membrane during eruption, being still covered by the gum tissue, infection is prone to occur, with fever, swelling and abscess formation, which may discharge either in the mouth or on the neck and become chronic. If the pus be not retained the condition may be entirely local and the suppurating condition may exist indefinitely, being a continual source of toxemia.

Neuralgia, the ordinary facial type or tic douloureux, is at times caused by pathologic conditions of the teeth. Focal calcification of the pulps, at times, gives rise to neuralgic pains.

While the etiology of carcinoma is still in the dark, it is certain that carcinomata do develop on the tongue and mucous membrane of the mouth at the site of abrasions and traumatisms due to sharp teeth or roots.

Tuberculosis can be implanted on an abraded mucous membrane; hence it is imperative that the mucous membrane of the mouth and lips be kept intact. The dentist should be able to cope with any pathologic condition in the mouth, thereby attacking disease many times in its inception, when it is often easy of eradication.

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THE TEETH AND ALVEOLAR PROCESSES AS POINTS OF ENTRANCE FOR THE TUBERCLE BACILLUS*

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Tuberculosis is probably the most discussed problem in medical science to-day. The internist, surgeon, gynecologist, ophthalmologist, dermatologist, laryngologist, orthopedist and dentist—all have a common interest in the problem. The tubercle bacillus is a free lance, defying and challenging all tissues. It invades the territory of every medical specialist without apology. No one can gainsay the statement that it is ubiquitous. It is looked on by the layman as man's greatest physical foe. More money, thought and skill have been contributed to conquer it than any other enemy of the physical man. All this is sufficient reason for discussing the question, even in a very limited way, and yet, the mouth is probably the most serious factor in the matter of infection from this organism.

The tonsil as a gateway of invasion is fully appreciated. It has been carefully studied and discussed. Medical literature in the past five years bears eloquent testimony to the splendid work which both the specialist and internists have done in the premises. Dmochowski found tubercle bacilli in lymph-vessels of tuberculous tonsils which led to involvement of the cervical glands. Hanan, Schlenker and Krueckmann demonstrated similar results by exact pathologic-anatomic demonstrations.

While many statements have been made concerning the mouth in its relation to the tubercle bacillus, not much has been done in the way of scientific study. This statement is a more or less severe indictment on the mouth specialists. Although mechanical dentistry has made splendid progress and has contributed in splendid fashion to the weal of society, nevertheless the most serious question which the mouth specialist faces is that of disease, its recognition and treatment. Diseased conditions of the mouth must always be studied and interpreted in their relation to the whole organism. This indicates very clearly the nature of the training needed by the one who is to occupy the field of stomatology.

In a rather comprehensive study Odenthal[1] found that 70 per cent. of all children were affected with enlarged lymphatic glands. It is a well-known fact that the lymph-glands in children are more easily irritated and involved than in adults. This is particularly true of tuberculosis of the cervical lymph-glands. The reason is obvious—the root canals render the invasion of the tubercule bacillus more likely and easy in children than in adults.

A simple statement here, concerning the cervical lymphatic glands, will be of interest and service. The body of the mouth, the submaxillary and sublingual glands and gums are drained by the vasa efferentia of the submaxillary lymph-glands. There are about a dozen of these, of various sizes, found on the inner surface of the mandible beneath the platysma. A number of small glands may be found on the lower margin and external surface of the mandible. Their vasa efferentia accompany the anterior facial vein. The relation of the roots of the teeth and alveolar process to these lymph-channels is an important consideration and concerns not only this phase but the entire field of medicine. "The superficial cervical glands are placed in the course of the external jugular vein, between the platysma and deep cervical fascia. They are most numerous at the root of the neck, in the triangular interval between the clavicle, the sternomastoid and trapezius, where they are continuous with the axillary glands. A few small glands are also found on the front and sides of the larynx. The deep cervical glands are numerous and of large size, forming an uninterrupted chain along the sheath of the carotid artery and internal jugular vein, lying by the side of the pharynx, esophagus and trachea, and extending from the base of the skull to the thorax, where they communicate with the lymphatic glands in that cavity" (Gray's Anatomy).

A route which is direct and brief in extent thus leads at once from the mouth through the tissues of the neck to the thorax. One is very apt to think of the mouth as brought into relation with the body by way of the esophagus and trachea. Here, however, in this lymphatic system is a nexus which, in many respects, from a pathologic standpoint is more vital than that afforded by the esophagus and trachea combined, vital as they are. It is a fact familiar even to laymen, and one which I need not discuss at length, that the tubercle bacillus, along with other pathogenic micro-organisms, enters the body freely through the esophagus and trachea. Here the invading organism is confronted, under normal conditions, by a "foeman worthy of his steel," a healthy epithelium. The same organism, gaining entrance through the lymphatics, finds a much more fertile field with a limited defense.

In 978 children (between the ages of 4 and 13) examined by Odenthal, 429 had progressive caries of the teeth. Of the 429 all except 4 had cervical lymphadenitis. In 237 of the 429 the teeth were badly broken down and the glandular enlargement was more pronounced. In 79 of the cases there were other pathologic lesions which could be assigned as responsible for the lymphadenitis. In 359 cases no cause could be assigned save carious teeth. In 131 cases caries were found on one side only, and in all of these the glandular enlargement was on the same side. Pedley examined 3,145 children and found that 77.5 per cent. had carious teeth with more or less pronounced cervical lymphadenitis. Ungaware examined 100 children and reports 87.2 per cent. with carious teeth. Felschel examined 335 orphans in Hamburg and found carious teeth in 96.4 per cent. Reese examined 13,167 children in Thuringen and Baden and found that 79 to 99 per cent. had carious teeth. The above children were between 6 and 14 years of age. Out of the 100 recruits examined by Cunningham 96 had carious teeth.

Unfortunately the authors quoted do not give data covering the percentage of glandular enlargements, clinical or microscopic diagnosis. The figures are, nevertheless, very interesting, as they indicate the great opportunity for the tubercle bacillus to gain entrance.

Of the children with enlarged cervical glands examined by Starck[2] 80 per cent. had carious teeth. After obtaining a careful history and making a thorough examination of each case he accepted 16 per cent. of the

* Read in the Section on Stomatology of the American Medical Association, at the Sixty-first Annual Session, at St. Louis, June, 1910.

1. Odenthal: Cariöse Zähne als Eingangspforte infectiosen Materials und Ursache chronischer Lymphdrüsenschwellungen am Halse, Inaug. Diss., Bonn, 1897.

2. Starck, Hugo: Der Zusammenhang von einfachen chronischen und tuberkulösen Halsdrüsenschwellungen mit cariösen Zahnen, Beitr. z. klin. Chir., xvi.

80 per cent. as having a hereditary predisposition to tuberculosis. In 41 per cent. of the 80 per cent. no other cause could be assigned except carious teeth. The average age of the children examined was 8½ years. Starck made an observation which is in keeping with my own experience, namely, that the extent of the glandular involvement corresponds with the number of carious teeth, and the extent of the carious process.

Cornet demonstrated before the tenth meeting of the German Surgical Society that he could produce tuberculosis of the cervical lymph-glands by inoculating pulps of teeth through artificial cavities. In animals he got the same results by rubbing cultures of tuberculosis between the lower incisor teeth, clearly demonstrating that the bacillus may enter either by way of the pulp chamber and root canal or the alveolar process. Baumgarten fed animals on tuberculous material, and in every case produced tuberculosis of cervical lymph-glands. In all of the animals the tonsils also were affected. Morelli and Jaruntowski[3] have clearly demonstrated the presence of the tubercle bacillus in carious teeth of patients suffering from phthisis. In this connection Hoppe has tried to prove that the presence of the tubercle bacillus is as frequent in the carious teeth of healthy as of tuberculous subjects. He examined decayed material from thirty-one carious teeth and found the tubercle bacillus in twenty-three. These were from healthy subjects in which the decay had reached the pulp.

Israel has conclusively demonstrated the infection of cervical lymph-glands by actinomycosis through the teeth.

Ruehle reports the case of a boy with *Spitzenaffektion* of the left side. The cervical lymph-glands on the same side were extensively involved. The process began by the enlargement of a single gland beneath the first molar. He demonstrated that the gland was tuberculous, but it is not certain from the record whether he found the bacillus in the molar tooth, which was badly decayed, though one would infer that he did.

Starck reports the following interesting cases:

CASE 1.—A healthy girl of 7 complained of toothache on the left side of the lower jaw. The teeth were badly decayed. Soon after the toothache had ceased, two glands under the cuspid and first molar on the left side became enlarged. Both the cuspid and first molar were carious. The glands soon enlarged and the overlying integument became discolored. The glands were extirpated. Microscopic examination revealed tuberculosis.

CASE 2.—A girl, aged 9, fairly strong and healthy, gave a clinical history of toothache on left side followed by gradual enlargement of cervical glands. At the time of the examination, the glands were quite large and the overlying skin was red. There was a fistula under the jaw discharging a serous fluid. Two large, partly caseous lymph-glands were excised, showing a tuberculous process on microscopic examination. In this case the lower second premolar and first permanent molar were badly decayed on the affected side.

CASE 3.—A girl, aged 10 years, with no disease in the family, had large cervical lymph-glands on right side second molar (probably six-year molar), badly broken down. The glands were extirpated. The microscope revealed a tuberculous process.

Here we have three perfectly healthy children with tuberculous heredity excluded. The tonsils and tissues of all three mouths were healthy. The teeth were badly decayed. In two of these cases he found the tubercle bacillus in the teeth, using Ziehl-Gabett's method.

3. Jaruntowski: Ueber Tuberkulose des Zahnfleisches, Zahnärztl. Wchnbl., viii, No. 3701.

Professor Ungar of Bonn reports the case of a boy 5 years of age with a badly decayed lower cuspid tooth. The gum tissue surrounding this tooth became involved in a pathologic process which was diagnosed as tuberculosis. Later on the gum tissues on the upper jaw became involved, probably by contact infection. Professor Trendelenburg extracted the teeth and carefully removed the diseased tissue together with the alveolar process. Some time later the submaxillary lymph-glands became involved and had to be removed. Later on the deep cervical lymph-glands became involved, necessitating an extensive dissection. All glands removed were tuberculous.

Zanby[4] has collected forty cases of tuberculosis of the alveolar process, in which he claims the bacillus gained entrance either through the pulp canals or "spaces between the teeth." He pertinently suggests that wounds following the extraction of teeth may permit the bacillus to enter, particularly in patients suffering from phthisis.

A valuable contribution to the study of the subject has been made by Cook,[5] who reports the following cases:

CASE 1.—Girl, aged 13. Tubercle bacillus found in twelve-year molar. No other evidence of tuberculosis.

CASE 2.—Colored boy, aged 18. Bacillus found in debris on posterior teeth. Molars badly decayed.

CASE 3.—Girl, aged 9. Tubercle bacillus found in scrapings around roots of teeth.

CASE 4.—Girl, aged 17. Tubercle bacillus found in lower second molar. Tooth extracted. Five weeks later a small nodule appeared under jaw directly beneath extracted tooth. Later other glands became involved; no operation made.

CASE 5.—Boy, aged 11 years. Badly decayed lower left first molar. Fistula opening on lower border of jaw. Bacillus found in tooth cavity and in necrotic tissue scraped from fistula.

CASE 6.—Girl, aged 11. Swelling under left lower first molar. Tooth badly decayed. Tubercle bacillus found in pulp chamber. Later on an abscess formed and tooth was removed. Numerous bacilli found in pus.

Cook reports three other similar cases.

In my own series of ten cases I shall merely mention six of them, as they differ but little from the cases recorded above. These six cases have been studied only in part, but I hope later to complete the study and report them in detail. In four cases of my series I have succeeded in making a satisfactory study.

CASE 1.—A boy of 9 years, strong and healthy. Family history negative. Two other children in the family in good health. Thorough physical examination revealed no other lesion than the one to be cited. Three months previously the boy complained of toothache on the left lower jaw. The parents being poor people, he went to a drug store and purchased a tube of "toothache paste," which was used regularly for a month or more, when the trouble ceased. The little patient suffered from pain intermittently during the period. About a month after the pain subsided, the mother noticed a nodule under the lower jaw, for which she came to me for advice. The mouth was in good condition, the teeth free from caries, except the lower left six-year old molar which had a large occlusive cavity. The enlarged lymph-gland was immediately under the tooth. Its character and appearance led to an examination which revealed the tubercle bacillus in the cavity. The pulp at this time was dead and putrescent. The tooth was at once extracted and a so-called "abscess sac" was found on the distal root. The contents of this sac were expressed on a slide, and the tubercle bacillus again discovered. After some weeks' hesitation the parents consented to an operation. A mass of six glands varying from the size of a filbert to that

4. Zanby: Von Bergmann's Surgery, i, 677.
5. Cook, G. W.: Bacterial Investigation of 220 Mouths with Special Reference to Tuberculosis, Dental Rev., 1899, xiii, 97.

of an English walnut were excised. Careful microscopic examination showed a typical tuberculous process. The patient had an uneventful recovery and four months after the operation was in perfect health, with parts normal. No evidence of recurrence.

CASE 2.—Girl, aged 10. This case gives a clinical history almost identical with Case 1. The findings were the same except on the opposite side of the mouth. Family history negative. Physical diagnosis negative, barring enlarged cervical lymph-glands on right side. The child had toothache located in the lower right first molar for several weeks, which finally disappeared. This was followed by an enlargement of the glands on the same side. After several examinations we finally discovered the tubercle bacillus in the decayed molar. The tooth was extracted, and a week later the enlarged lymph-glands were dissected out. One of the glands was distinctly caseous, and a diagnosis of tuberculosis, made from the gross specimen, was confirmed by the microscope.

CASE 3.—Boy, aged 8. This case was referred to me by Dr. Maser, who had extracted the lower left first molar a few days previous, following a history of toothache. The little patient had a mass under the lower border of the mandible on the left side which was rather diffuse in character. A mass of granulated tissue filled the socket occupied by the mesial root of the extracted tooth. This was curetted and the tubercle bacillus found in the scrapings. At the bottom of the socket there was a sinus which led directly into the mass under the jaw. When the integument was incised at the time of the operation, a large broken-down lymph-gland was exposed, which was accidentally ruptured by process of dissection. Beneath this were four or five smaller glands. In this, as in the other cases, there seemed to be a distinct limitation to the process, the glands involved being walled off.

CASE 4.—Married woman, aged 32. Family history and physical findings negative. Extensive enlargement of cervical lymph-glands on left side. General condition of mouth poor. Salivary deposits on teeth marked. Gums congested and sensitive. Piece of bridgework on left lower jaw, extending from first bicuspid to second molar. Roots of these teeth very loose with pus in their sockets. Apex could be reached on almost every surface with a fine probe. The bridge was removed altogether with the roots which served as abutments. The sockets were carefully curetted and examined microscopically. The tubercle bacillus was found on two different slides. The patient refused to have the glands excised, but consented to have us remove one under a local anesthetic for purpose of diagnosis. The microscope confirmed our clinical diagnosis of tuberculous lymph-glands.

In studying the tubercle bacillus one has constantly to bear in mind the ease with which mistakes may be made; the difficulties encountered, first, in finding the organism, and second, in staining it successfully; and also the smegma and lepra bacilli, Moeller's grass bacillus, the Petri-Rabinowitsch butter bacillus and their staining characteristics. Metchnikoff, Maffucci and Lubarsch have pointed out the aberrant forms, the recognition of which constitutes still another difficulty. Starck saw some bacilli, shorter and thicker, which were contained in a peculiar white cell. In these he noticed a point at one pole which took the stain poorly. He regarded these as endogenous spores. Despite all the difficulties, however, there is an abundance of clinical material for study and observation. While the amount of work done in the premises is limited, the case has been won, and proof is at hand that the tubercle bacillus does gain entrance to the body through diseased teeth and alveolar processes, and that the cervical lymphatics are directly infected by this route. The full significance of all this will be revealed by further study. Suffice it to state in passing that when the facts are all understood an exceedingly important contribution to modern medical science will have been made.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. POTTS AND MOOREHEAD

DR. JAMES E. POWER, Providence, R. I.: In regard to the finding of tuberculous glands, there is no question in my mind that hygienic conditions are influenced by the mouth condition, but Dr. Moorehead failed to state the physical condition of these patients. There is no question about tuberculosis being all that we believe it to be. On the other hand, we must not forget that there are many people affected with tuberculosis, which is only discovered after death. The record of autopsies show that the majority of cases have evidence of healed tuberculous processes in their lungs.

DR. M. H. FLETCHER, Cincinnati: Dr. Potts mentioned tic doulourcux as one of the results or as a symptom. Our surgeons assume that tic douloureux is central—in the Gasserian ganglion or brain; but, ten years ago, in order to bring attention to the subject and to put before the association cases which I had observed, I assumed that it was peripheral. Since then I have had a number of cases which have strengthened this hypothesis.

It is a well-known fact that diseases of the periosteum about the face or teeth, or in the accessory cavities and air-passages, produce these continuous pains. I have had a number of cases sent to me with these symptoms. These patients were examined by some of our best men, and before being operated on were sent to me for my diagnosis. I found one case in which the pain was in the zygoma and under the right eye, and was due to an exposed pulp in the first molar below. Paroxysms of pain were drawing up the face—pain coming on suddenly and lasting for an hour or two. Sometimes it would be shorter. Before I found the trouble I had removed the second molar on the right above. After it and the pulp in the lower free molar were removed, the pain disappeared completely. The patient went home and came back in a few days suffering just as much as ever. I found that the gutta-percha filling which I had inserted for temporary purposes was pressing on the gum between the teeth and forcing it down against the bone. On relieving the pressure the pain disappeared. I have given a good deal of attention to these conditions and the possibility of their being tuberculous, and that necrotic alveolitis where there are deep-seated pockets in cancellous bone and no pus is sometimes accompanied by acute pains approaching tic douloureux. I believe that the bones of the face, like the spine or other bones, are frequently infected by tubercle bacilli.

DR. EUGENE S. TALBOT, Chicago: More than twenty years ago I commenced the use of iodin for interstitial gingivitis, and in the treatment of that disease found the mouth cleared up beautifully, but it was not until later I understood why I was getting such results. I know now that if we would take those patients that come to us for the first time, even for the extraction of teeth in children's mouths, if the mouths were painted with iodin for a few minutes—fifteen minutes or half an hour before—the germs in the mouth would be destroyed. The difficulty with the official preparation of iodin is that when it is mixed with alcohol it irritates the mucous membrane which, after one or two applications, will peel off. To overcome this tendency I have compounded a preparation without the alcohol. It is necessary to use only a 10 to 15 per cent solution. I usually in my regular practice make application when I get through the operation for the day. Every patient that comes to me gets a dose of that before he leaves the office. In cases of sepsis, the tissue between the teeth and around the gums should be thoroughly saturated. If I were to perform operations on the throat, I should paint the tonsils with a preparation composed of zinc iodid, 15 parts, water 10 parts, iodin 25 parts and glycerin 50 parts. This preparation, which I have named iodoglycerole, is coming generally into use, for the reason that it penetrates the deeper tissues and destroys the germs embedded there.

I am confident that if the mouths of all school children were treated with iodoglycerole it would entirely prevent mouth infection in the public schools. I would recommend school authorities to treat the mouths of the children once a week, especially when there are epidemics.

DR. V. P. BLAIR, St. Louis: Of course, we know that the tubercle does not arise in the gland, and that it does come from the points that the glands guard. There is no doubt that the tonsil is the greatest source of infection. It has been worked out in certain clinics in Chicago and Rochester, and they tell me in Rochester that 8 per cent. of the tonsils removed are tuberculous. In a certain number of cases of tuberculous glands of the neck, the tonsil does not look as if it were probably the site of infection. Of course it may be; we cannot always tell from mere inspection. Tuberculous ear infection is rather rare. A few of these cases come from the nasal tonsil. But I believe from clinical observation that a certain percentage of cases of tuberculous glands of the neck come either through a tooth or around it. This being the case, it is important for the surgeon who is operating on a tuberculous gland of the neck to have the teeth attended to. It is my custom to use an antiseptic wash every two hours. It seems to me rather doubtful, unless it were put in with the greatest care, whether a single application of iodin would reach all the spaces between and around the necks of the teeth; but if it could be made to reach every part, it would certainly be a good thing. It is not an uncommon thing to see enlarged glands in the neck, which are probably not tuberculous, subside on a nose and throat wash, which seems to indicate that washing does some good.

DR. T. W. BROPHY, Chicago: The late Dr. Senn thought iodin the most potent of all germicides. His favorite preparation was 1 per cent. iodin crystals and 1 per cent. potassium iodid with 98 per cent. of water. This he used freely, flushing the abdominal cavity, especially in cases of infection. He declared that many of his patients who recovered with the use of this treatment would have been lost without it.

DR. STEWART L. MCCURDY, Pittsburg: I read a paper a few years ago in relation to the use of iodin in cases of bone infection in which I reported a hundred or more cases. I have used iodin in all cases of osteomyelitis. Three weeks ago I chiseled open a tibia having central disease, and found that the cancellous structure of the medullary canal was entirely dissolved away, and that the bone was perfectly white inside, showing that the disease had existed for a long time. After opening the canal I used a syringe with a nozzle about three inches long and injected tincture of iodin in both directions, closed the cavity, and the patient walked out of the hospital in two weeks without any of the old pain. I could report probably fifty cases of this type. We inject everything which has pus in it with iodin. A case of a child with a tuberculous foot in which I removed the cuboid and cuneiform bones, it was immersed in a 10 per cent. solution of iodin for two hours every day for three weeks. I have been doing this in all such cases. If desired, compound solution of iodin may be used in place of the commercial tincture of iodin.

DR. H. A. POTTS, Chicago: I think that tic douloureux undoubtedly may be of dental origin, and therefore peripheral, as Dr. Fletcher said. Following hemorrhage of the brain, we at times find symptoms which are identical with tic douloureux which are central, and all operations, either ganglionic or peripheral, have no effect on it. I have known of cases undoubtedly of peripheral origin. Then, too, I think a close diagnosis should be made between tic and ordinary neuralgic pains, which are peripheral. The cases which are epileptiform and extend over a number of years are known as tic douloureux. I should also be interested to know if his patient is cured two months from now; because many of these cases of tic douloureux fall into unfortunate hands and have one tooth extracted after another, get temporary but not permanent relief.

It seems to me that tuberculosis of the bones of the face as a primary disease is exceedingly rare. I doubt also whether it follows an implantation or an extension from glandular tuberculosis. I think that the only tuberculosis of the bones of the face which may be considered primary is that which we most frequently see of the zygoma. This may be explained by the rich blood-supply; it does not have a chance to become infected; the opposite condition explains the presence of tuberculosis in the epiphysis of the long bones or digits or small bones of the hands.

DR. F. B. MOOREHEAD, Chicago: In answer to Dr. Powers, I reported the physical examination of all the cases and excluded every possibility of tuberculous infection from every other source in the body. I do not believe that tuberculosis was present in any of the cases Dr. Fletcher has cited. Tuberculosis of the bones of the mouth and face is exceedingly rare, except through extension from lupus vulgaris. The blood and lymph supply of the parts is so great that the tubercle bacillus will find lodgment elsewhere, particularly in the cervical lymphatic glands.

If I have any hobby it is diagnosis. By that I mean the analysis of every element entering into the pathologic process. It is a thing which a man must train himself to do in every case which he meets. It is the crux of every problem. If a man will train himself to that sort of thing he becomes more expert as a diagnostician and clinician.

GONORRHEAL ARTHRITIS OF WRIST AND KNEE

IN A CHILD THREE WEEKS OLD

G. FRANK LYDSTON, M.D.
Professor of Genito-Urinary Surgery in the Medical Department of the University of Illinois
CHICAGO

The following case is reported because of its rarity. It is especially rare because of the relation of the arthritis to gonorrheal conjunctivitis.

History.—Baby X., aged 3 weeks, was seen in consultation with Dr. Benjamin N. Novy. Through ignorance of the mother's condition the infant's eyes had been permitted to become infected at birth. Subsequent investigation showed that the mother had gonorrhea. Within forty-eight hours after birth the child developed gonorrheal conjunctivitis, which proved to be of moderate severity and was under control at the time of my examination. On the fourteenth day the left wrist became greatly swollen, painful and slightly reddened. Three days later the right knee became involved in extensive swelling of a character similar to that of the swelling of the wrist. The immunity of infants from ordinary rheumatic arthritis, taken in connection with the typical physical characteristics of the involved joints, and the moderate temperature—ranging from 100 to 101 F.—and the clear history of gonorrheal infection established the diagnosis.

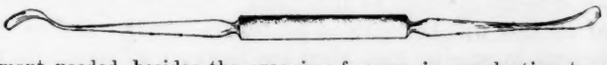
Treatment.—Antigonococcal serum was administered hypodermatically, beginning with three minims every other day and gradually increasing until fifteen minims were given. The reaction was slight and improvement prompt. At present, about four weeks since beginning the serum treatment, the joints are almost normal. There is some impairment of motion of the knee, for which I have recommended passive motion. Ankylosis, I think, will not result. The wrist requires no further attention. The local treatment consisted in constant application of the following anodyne ointment:

R	gm. or c.c.		
Ol. gaultheriæ	8		ʒii
Ext. aconite rad.			
Ext. belladonnæ rad. āā	3	or	gr. v
Mentholis	6		gr. x
Adipis lanæ hydrosi qs ad.	30		ʒi

Sig.—Apply on sheet lint and surround by cotton and oiled silk.

100 State Street.

New Tonsil-Knife and Dissector.—The accompanying illustration shows a new tonsil-knife and dissector, devised by Dr. E. R. Carpenter, El Paso, Tex., which has been found satisfactory by a number who have used it. It is the only instru-



ment needed, besides the grasping forceps, in enucleating tonsils, he says. With it, adhesions are freed, and an opening is made behind the capsule with ease. In the illustration the left end has a sharp edge and the right is semi-sharp.

A FLEXIBLE CONTACT DIAPHRAGM AND PROTECTIVE SHIELD FOR X-RAY TUBES

SINCLAIR TOUSEY, AM., M.D.
NEW YORK

A diaphragm or an opaque barrier of some kind with an opening of appropriate size is useful in *x*-ray treatment by limiting the application to the desired region, while protecting other parts of the patient and also the operator from the influence of the rays. Its value in radiography depends not only on the above factors, but also on its exclusion of vagabond rays arising from various parts of the *x*-ray tube and blurring the clean-cut shadows which would be produced by the direct rays emanating from the focus point on the anticathode. An example of blurring, due to light radiating from a large area instead of from a single point, is seen if the fingers are held against a piece of paper a few feet from a window. The shadow seen on the further side of the paper has a much blurred margin. The shadow of a coin held against the paper is much more sharply cut, although the finger is just as opaque to ordinary light.

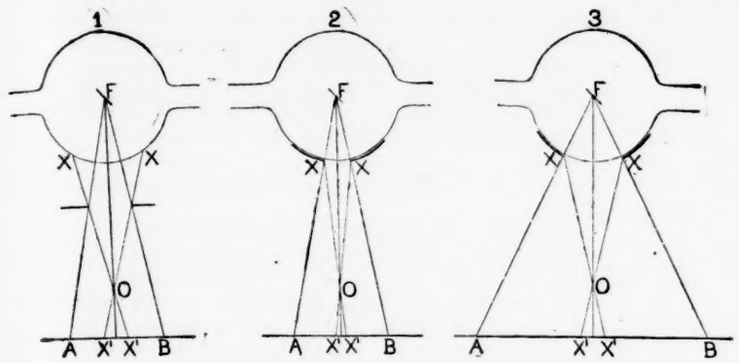


Fig. 1.—*X*-ray tube with 2-inch diaphragm, 6 inches from anticathode. *A-B*, 6-inch field at 18 inches. *X-X*, area of tube from which vagabond rays pass through an object at *O*. *X'-X'*, amount of blurring of the image of *O*.

Fig. 2.—Contact diaphragm with 1-inch orifice in contact with the wall of the tube. *A-B*, same area of illumination; but *X-X*, smaller area for origin of vagabond rays and *X' X'*, reduced blurring of image of object *O*.

Fig. 3.—Contact diaphragm with larger orifice giving no larger area for origin of vagabond rays *X-X*, and no greater blurring, *X'-X'* than in Figure 1, but an increased field of illumination.

There are factors operative in determining the definition in a radiograph, namely, the area from which rays originate and the distance of different parts of the patient from the surface of the photographic plate. With the plate directly in contact, the distance from different portions depends on the thickness. A good antero-posterior radiograph of pneumatic sinuses through the entire thickness of the head is an impossibility without a diaphragm.

The smaller the orifice of the diaphragm, of course, the clearer becomes the image, but the area embraced in the picture becomes correspondingly smaller.

My contact diaphragm[1] is designed to secure the best possible definition with a wide field by having the orifice in contact with the wall of the *x*-ray tube. An orifice 2 inches in diameter, at a distance of 3 inches from the wall of the tube and say 6 inches from the focus point on the anticathode, will permit of making a radiograph only 6 inches in diameter on a plate 18 inches from the anticathode.

It greatly reduces the amount of blurring as compared with that produced without a diaphragm, but still permits of some blurring as shown in Figure 1. A diaphragm, in contact with the wall of the tube and with an orifice only 1 inch in diameter will give the same 6-inch radiograph at a distance of 18 inches with much less blurring, because rays from a much smaller part of the *x*-ray tube can pass through a given part of the object and produce a shadow, as in Figure 2. A contact diaphragm of this size is correct for the radiography of the pneumatic sinuses of the face.

Sufficient definition for studying the condition of the spine or the lungs or the entire urinary tract in the search for calculi, may be obtained with a contact diaphragm whose orifice is 2½ inches in diameter. Figure 3, drawn to the same scale as the others, shows that this greater field is secured with less blurring than the smaller field with the 2-inch diaphragm 3 inches from the wall of the tube. This fact has been actually demonstrated in my own practice.

The flexible contact diaphragm (Fig. 4), is of flexible rubber composition containing a lead compound which is opaque to the *x*-ray but which is not a conductor of electricity. It is flexible enough to be changed from one tube to another but fits so closely that there is no danger of its shifting during use. It covers about ⅞ of the bulb, the uncovered part being at the back and affording sufficient surface to prevent overheating. In actual use I have found that it gives the desired increase in definition without any drawbacks, such as inverse discharge or rapid hardening of the tube. Its orifice is directly in contact with the glass and can be made

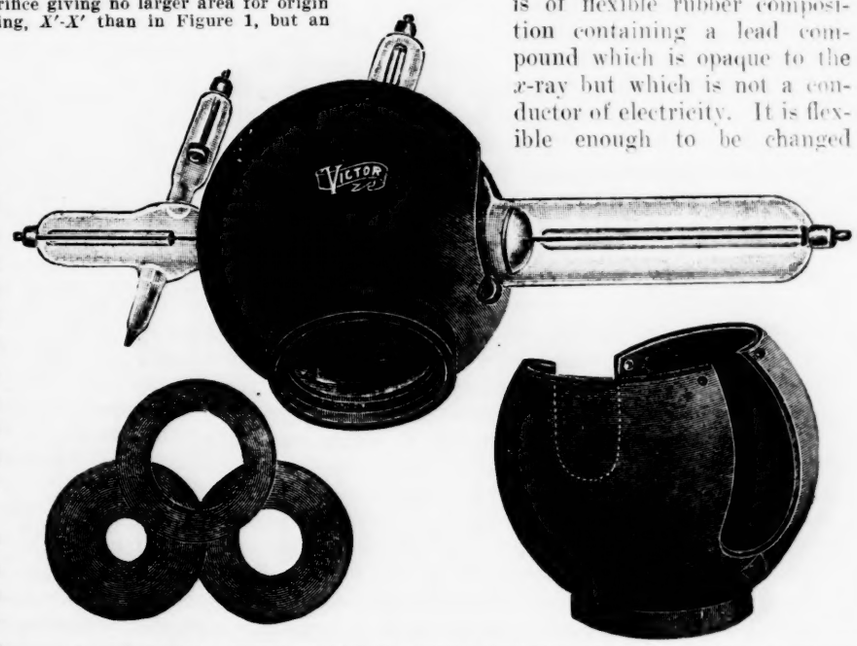


Fig. 4.—Flexible contact diaphragm forming protective shield, with orifices of different sizes.

1. Tousey: Medical Electricity and the Roentgen Ray, W. B. Saunders Company.

smaller by inserting three different rings of an opaque rigid material. For occasional use in radiography or in Roentgenotherapy, it affords all necessary protection, but for constant use, I place the tube and contact diaphragm inside the opaque box known as Ripperger's shield,[1] and use lead-glass spectacles and opaque apron, gloves and cap. A simple expedient would consist in remaining outside the room while the *x*-ray was in operation.

140 West Fifty-seventh Street.

LIVER ABSCESS

A REPORT OF TWO CASES OF ABSCESS OF THE LEFT LOBE

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Captain, Medical Corps, U. S. Army
FORT ONTARIO, N. Y.

The tropical or amœbic abscess of the liver concomitant with or a sequel of dysentery presents enough diagnostic difficulties to make any discussion of it acceptable to those who are initiated. In this brief paper no attempt is made to discuss this great subject in general, but these few suggestive ideas occurred to me in the study of this disease.

The clinical picture of liver abscess given in text-books seems clear and plain enough, but the text-book descriptions are often really of little help to the surgeon in his work, because they appear to be largely based on far advanced cases in which the pathologic process has extended to involvement of neighboring structures and the abscess has reached such great proportions that the patient is in a desperate situation. It is remarkable also, that many text-book descriptions indicate that the authors in their discussion of differential diagnosis have in mind abscess situated in the right lobe of the liver, excluding the possibility of its occurrence elsewhere in the organ.

Roux gives the relative incidence of abscess in the several lobes of the liver, based on 639 cases, as follows: right lobe 70.85 per cent., left lobe 3 per cent., the remaining percentage includes abscess in all other lobes and those that are multiple. It can be seen therefore that although the preponderant number of abscesses do occur in the right hepatic lobe, yet the location of the disease is variable enough to make the average text-book description, fitted to abscess in right lobe, not sufficiently comprehensive, and indeed inadequate.

During the past year I have operated in two cases of abscess located in the left lobe of the liver and the purpose in briefly reporting them is to reiterate what is commonly known, that of all the grave tropical disorders, liver abscess is the most insidious and circumventive.

These cases have several common points in their history. Both patients are soldiers who contracted mild dysentery in the Philippine Islands about 7 years ago, which was followed by abscess of the right lobe of the liver. Both were successfully operated on at the time, followed by recovery and return to the full duties of a soldier. Both have served a two-year tour in the tropics since that time, and are now serving in the third year since last return. Both men are harboring *Amœba dysenteriæ* but have had no dysenteric symptoms since the liver abscess trouble seven years ago. Their health has been good from that time until the illness reported herewith.

CASE 1.—Artificer K., reported sick and was admitted to Post Hospital, Fort Ontario, N. Y., April 12, 1909. He said he had been feeling "a little off" for several days and that he had lost some weight but did not know how much. He said he had a night-sweat several days previous to admission but no chill.

Symptoms.—The patient complained of mild digestive disturbance, loss of appetite and some weakness; had no pain of any kind but had general discomfort over abdomen which he attributed to indigestion.

Physical Examination.—The abdomen was slightly distended with gas, which was promptly relieved by enema; tongue coated but not foul; patient appears to be not very sick. There was a point of slight tenderness on deep pressure at the epigastrium slightly to the left of the median line. Liver dulness was not increased on either side and the liver was not palpable. Heart, lungs and kidneys were normal, stools were positive for *Amœbæ dysenteriæ* but there was no diarrhea. Temperature ranged between normal and 99.4 F. in an irregular curve. He had moderate night sweats between April 12, the date of admission, and April 17. The point of tenderness in the epigastrium during this time extended more to the left and became general along the left costal margin. On April 16 he had pain for the first time which he could not definitely locate, but stated that it occurred only after each bolus of food had been swallowed, and lasted but a few seconds.

Diagnosis.—The diagnosis of abscess of the left lobe of the liver was based on the history of previous abscess and ameba in the stools, the night sweats, moderate irregular fever, pain after swallowing and slight tenderness over left costal border.

Operation.—April 17, 1909, under ether anesthesia a left infracostal incision was made, revealing an abscess the size of hen's egg near the upper surface of the left lobe, which was evacuated and drained. Uneventful convalescence ensued and the patient returned to full soldier's duty June 25, 1909.

CASE 2.—Sergeant M. reported sick and was admitted to Post Hospital, Fort Ontario, N. Y., March 17, 1910. Patient stated that he had a chill the night before admission and pain in chest so that he thought he was going to have pneumonia. He said he was feeling well until the night before admission but that he was not quite so strong and robust as he had been several months before.

Symptoms.—Patient had distaste for food but no nausea, general soreness over chest and an annoying cough. There were no abdominal symptoms.

Physical Examination.—Auscultation revealed mild bronchitis; no tenderness in abdomen anywhere. His temperature rose to 102 F. the first day in hospital and the same night he had a drenching sweat which required the changing of the bed linen. These sweats continued nightly, occurring about 3 a. m.; also an irregular fever ranging between 99 F. and 102 F. The bronchial irritation cleared up in a few days, pain ceased and cough disappeared. Pain or tenderness suggestive of any abdominal trouble did not appear until March 25, eight days after admission, when tenderness was elicited over lower ribs of left side in an area as large as a man's palm. This tenderness increased from day to day and increased in area until it became general along left costal margin and in epigastrium. Finally pain appeared which was only present on deep inspiration, but this increased so that the respiratory excursion was quite limited. Heart, lungs and kidneys were normal. The line of liver dullness over left lobe extended towards splenic area and left lobe was palpable below costal margin. Palpation of the liver gave little discomfort.

Diagnosis.—As in the previous case it was based on history of dysentery and former liver abscess, pain on deep inspiration, local tenderness, fever and night sweats.

Operation.—March 28, 1910, under ether anesthesia a left infracostal incision was made, revealing the left lobe adherent to the diaphragm which separated with difficulty. An abscess in the left lobe opened, hourglass in shape, which discharged 100 c.c. pus. Drainage was employed and recovery was uneventful. Patient returned to soldier's duty May 5, 1910.

The distribution of the portal circulation to the various hepatic lobes explains in a measure why abscesses occur most frequently in the right lobe. The portal branch passing to the right lobe is the largest and is the

most direct and swiftest route for amœbæ, bacteria or infective emboli to enter the liver substance.

It will be noticed in the two cases cited that each had had abscess in the right lobe previously, and at operation I found that in both cases there was reduction in size of the right lobe with adhesions to the diaphragm and neighboring structures and that there appeared to be wide-spread fibrous infiltration throughout the right lobe, indicating that the abscesses had been quite large and destructive to the liver substance. This fibrous shrinking of the right lobe would operate to reduce the volume of the portal circulation to that portion of the liver. Also compensatory hypertrophy of the left lobe would make its portal circulation swifter and more direct for the entrance of infective material.

On the other hand, it would appear that abscesses occurring subsequent to those in the right lobe would have selected again the damaged right lobe as a point of least resistance.

The interesting points in these cases are:

1. Both men had liver abscess in right lobe previously.
2. Both were in excellent health in spite of their being the hosts of *Amœbæ dysenteriæ*.
3. Rapid onset of the disease.
4. Mild symptomatology, which was less defined than the descriptions indicate.
5. Absence of many of the "classical" signs of liver abscess as given in text-books.
6. Difficulties in early diagnosis which would have been encountered in absence of history of dysentery and previous abscess.
7. Rapid convalescence and return to normal health in spite of amebism.

THE VALUE OF EHRLICH'S TRIACID STAIN IN BLOOD WORK

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Associate in Medicine in Charge of the Clinical Laboratory, Johns Hopkins University
BALTIMORE

Within recent years the development of numerous modifications of the Romanowsky stain, by which blood smears may be fixed and stained in a few minutes, has limited the use of Ehrlich's triacid stain in many laboratories. The former, it is true, are far preferable in the study of pathologic changes in the erythrocytes, as cell nuclei, nuclear particles, polychromatophilia, basophilic granules, and Cabot's ring bodies, as well as certain parasites, are demonstrated to better advantage than with any other single stain. With Ehrlich's triacid, ring bodies and basophilic granules are not revealed, and polychromatophilia is shown very imperfectly. In studying the leukocytes, however, the Romanowsky stains are not to be compared with Ehrlich's triacid, and it seems unfortunate that they are so widely used at the present time in differential leukocyte counting.

CLASSIFICATION OF LEUKOCYTES

The generally accepted classification of the leukocytes is that suggested by Ehrlich, based on the staining reactions of these cells to his triacid staining mixture. By means of it the normal and, what is more important, the pathologic leukocytes are clearly separated into definite groups or classes, and this is particularly well illustrated in the staining of the myelocytes. In the majority of instances it is impossible to obtain a satisfactory stain of them with the Romanowsky stain. It happens either that the granules do not take the stain at all or, more frequently, that they are not specifically stained. In fact, it is characteristic of young granular cells (myelocytes) with a Romanowsky stain that the granules take a purplish color (i. e., basophilic), whether they are in reality neutrophilic, eosinophilic or basophilic myelocytes. It is only necessary to stain such a blood with the triacid stain to verify this statement. The differentiation at once becomes evident, the myelocytes (and polymorphonuclears as well) appear more numerous, and the "unclassified cells" are less conspicuous. Furthermore, in a specimen stained with a Romanowsky stain it is at times extremely difficult, if not impossible, to distinguish between some of the large mononuclear cells containing azure granules on the one hand and myelocytes on the other. With the triacid stain this problem, of course, does not exist. While it is usually possible for one experienced in blood work to interpret, with a certain degree of accuracy, a specimen stained by the Romanowsky method in terms of the triacid stain (in other words, to make a fairly satisfactory guess as to the classification of pathologic cells), still it holds good that for the average worker who does not specialize in hematology, and for the medical student this is an almost impossible task. Nor is there any apparent way of avoiding this pitfall so long as the present classification of leukocytes is used, except by a return to the use of the triacid stain.

FIXATION OF FILM

One of the chief difficulties in applying the triacid stain, indeed, the chief difficulty, is the fixation of the blood film, which must be done by heat. Two methods of heat fixation are commonly employed, (1) the quick method, by the use of the copper bar, and (2) the slow method, by means of a hot-air oven. The latter is the one used in teaching laboratories, where it is necessary to fix a hundred or more blood films for class work; the films are heated at a temperature of about 110 C. for one to two or more hours. In order to determine the optimum fixation four or five films are placed in the oven, one being removed at the end of an hour or an hour and a quarter, and then one at an interval of fifteen minutes thereafter. The specimens are stained and examined and the proper fixation time noted. The remaining specimens are then fixed the required length of time, and may be stained at once or at any time within the next few months. This method is, of course, out of the question for the practitioner, as it consumes altogether too much time, when a single specimen is all that is required. For him the copper bar method is far preferable. The bar, resting on a tripod, is placed so that its tip is in a Bunsen flame; a constant temperature is soon acquired. Water is now dropped on the bar and the point noted at which the drop remains spheroidal. The blood film, with the specimen side up, is placed just inside the "spheroidal point" (i. e., toward the flame) and allowed to remain from five to one hundred and twenty seconds, ordinarily about thirty to forty-five seconds. It takes only a moment to fix several films for various periods of time. All may be stained at once, and the best specimen selected for study. In a properly fixed specimen the erythrocytes have a buff color; overfixation causes them to be stained yellow, while in an underfixed film they are red. The final criterion by which a specimen should be judged is, however, a clear-cut differentiation of the leukocytic granules.

STAINING TECHNIC

The staining technic is very simple. The specimen is covered with the stain for from five to ten minutes (overstaining is impossible), washed, blotted dry, and mounted. With a little experience a satisfactory preparation should usually be obtained in fifteen minutes at the most, often in half this time. When the method has been mastered the time-consuming qualities of the triacid stain are not much greater than are those of the Romanowsky stains—certainly not enough to warrant the apparent disuse into which the stain has fallen.

PREPARATION OF THE STAIN

When it is necessary to prepare one's own staining mixture, another drawback to the triacid stain of Ehrlich may be encountered. (Fortunately very satisfactory preparations of the stain are on the market, notably Grübler's.) The formula given in text-books frequently fails utterly and it becomes necessary often to waste numerous batches of stain before a suitable mixture is obtained. As is well known, the staining ingredients of Ehrlich's triacid are a basic stain, methyl green, and two acid stains, orange G. and acid fuchsin. The three basic radicles of the methyl green are neutralized by the acid stains, hence the name triacid, which Ehrlich selected. Determining the proper quantity of each stain in the mixture is the usual source of trouble in its preparation. While experiencing this difficulty, a slight modification of the original formula was found, which has proved very helpful. The formula as modified is:

	c.c.
Saturated aqueous solution of orange G	13.0
Saturated aqueous solution of acid fuchsin	7.0
Distilled water	15.0
Absolute alcohol	15.0
Saturated aqueous solution of methyl green	17.5
Absolute alcohol	10.0
Glycerin	10.0

The fluids are measured in the same graduated cylinder, which should not be rinsed. The receiving flask should be shaken vigorously after the addition of each constituent, which is added in the order given in the formula. It is essential to add the methyl green, second portion of alcohol, and glycerin slowly, shaking well after each portion is added. The mixture is ready for use immediately and does not deteriorate with age.[1] During the last three years I have had frequent occasion to prepare large quantities of the triacid stain for class and ward work, and the mixture, made according to the formula given above, has been uniformly satisfactory, not a single failure having been recorded.

SUMMARY

In summary it may be said that the difficulties in the use of the triacid stain of Ehrlich are largely magnified as a rule. Fixation by means of the copper bar may be completed in a few seconds; by the formula given above the preparation of the staining mixture is apparently certain and simple. Its advantages are so great in the differentiation of the leukocytes that it should be employed as a matter of routine in making differential counts. For the study of pathologic erythrocytes, blood platelets, and certain parasites, on the other hand, resort should be had to one of the modifications of the Romanowsky stain.

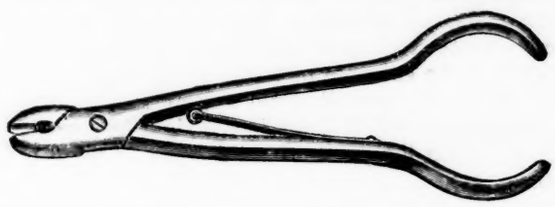
311 Cathedral Street.

1. A bottle of the triacid stain which has been in the Clinical Laboratory of the Johns Hopkins Hospital for about ten years still gives perfect results. In preparing the mixture it is convenient to keep a large quantity of saturated aqueous solution of each of the three stains on hand, replenishing immediately after using; the powdered stain should be present in excess and allowed to settle to the bottom of the bottle. After the mixture is prepared, a small amount of precipitate will form. Care should be taken that this is not disturbed when using the stain; otherwise the blood film may appear dirty or unevenly stained.

AN IMPROVED RONGEUR FOR MASTOID OPERATIONS

W. SOHIER BRYANT, A.M., M.D.
NEW YORK

This large powerful rongeur saves a great deal of time in the mastoid operation, since it will morsel hard bone very rapidly. The tip of the mastoid process and the outer table of the mastoid are quickly bitten off. When it is necessary to remove a part of the calvarium entire, this instrument will morsel it with great rapidity



and with very little jar. The leverage of the instrument permits the exertion of a tremendous force. The rongeur is strong enough to take out the bone rapidly with a minimum of muscular exertion.

41 East Thirty-third Street.

THE UVULA AND ITS SINS

ADRIAN F. BURKARD, M.D.
OMAHA

The uvula is so inconspicuous and innocent looking that its importance as a trouble maker is too often overlooked.

CASE 1.—One night about 11:30 o'clock a man, aged 50, came into my office complaining that a large piece of hot potato, which he had tried to swallow without sufficient mastication at supper time, had lodged in his throat. An examination revealed no potato, but did reveal an elongated uvula, which hung down on his epiglottis, causing, I judged, the disagreeable sensation. One snip of a tonsillotome removed the uvula, and with it the hot potato sensation, immediately and forever.

CASE 2.—Another patient, a clergyman, aged 40, came, complaining that he would have intermittent dyspnea, which sometimes got so bad that he feared he would die any moment. These severe attacks came and went rather suddenly. He would have them sometimes in the middle of a sermon, to his great embarrassment. Amputation of the uvula cured him immediately and permanently.

CASE 3.—A third patient had what his friends termed a "graveyard cough." He would have attacks of violent, barking cough—had had them for thirty years. Uvulectomy entirely relieved him.

Self-Defense Against Disease.—Stengel (*Proc. Path. Soc.*, Philadelphia, February, 1910) points out that the variations observed in the severity of the symptoms of typhoid fever and other infectious diseases may be due to some temporary pathologic or even physiologic cause rather than to varying grades of virulence of the infection. The tendency is to attribute undue severity to undue virulence or dosage of the infectious cause. A young man suffering from typhoid developed pronounced symptoms, including excessive fever, marked twitchings, delirium, cyanosis, abdominal distention, etc. Two hypodermic injections of morphin changed the whole character of the case. The intensity of the symptoms was due to lack of resistance dependent on want of sleep. Similar phenomena have been noted in the case of young women with typhoid in whom the onset occurred near or at the menstrual epoch. The severe symptoms subsided when the period had passed. Stengel has reported some striking instances of this.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1910," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

(*Continued from page 1869, Vol. LIV*)

NUCLEIN, NUCLEIC ACID AND NUCLEATES

Nucleins are modified nucleoproteins obtained by peptic digestion or by treatment with dilute acids. They are split up by the action of alkalies or by tryptic digestion into a protein constituent and a nucleic acid. The exact composition of the protein and of the nucleic acid varies somewhat with the source of the nucleoprotein from which it is derived. The nucleic acids of commerce are apt to contain some protein in combination. They are most commonly made from yeast cells, but have been made, also, from the wheat embryo, the sperm of certain fishes and from the thymus and pancreas glands. In composition they approximate the formula: $C_{39}H_{52}N_{14}O_{28}P_4$. From the wheat embryo products with relatively more nitrogen have been obtained.

Nucleins are colorless, amorphous, insoluble in alcohol and ether and insoluble or slightly soluble in water. They are more or less readily dissolved by dilute alkalies. They give the biuret test and Millon's reaction. They show a great affinity for many dyes, taking them up from aqueous or alcoholic solutions. The term nuclein is sometimes used to designate an impure nucleic acid, which usage has led to confusion as the nucleic acids are bodies of definite composition.

Nucleic acids are amorphous, white, and have an acid reaction. They are readily soluble in ammoniacal or alkaline water with the formation of water-soluble salts. From these solutions they are precipitated by slight excess of hydrochloric acid but not by acetic acid (except guanylic acid). They are insoluble in alcohol and ether. When chemically pure they do not give the biuret test or Millon's reaction. They are dextrorotatory. Nucleic acids are decomposed by boiling with acids, or by the action of nuclease, yielding nuclein bases. These nuclein or purin bases are characterized by forming silver salts insoluble in ammonia.

Both nucleins and nucleic acids yield metaphosphoric acid on incineration. On fusion with potassium nitrate and sodium carbonate they yield alkali phosphates.

Actions and Uses.—Nuclein and nucleic acid and nucleates are said to increase the number of white corpuscles, and it has been claimed that this increases the resistance to infections. These results have been obtained by intravenous or hypodermic injection, and on this basis therapeutic deductions have been made; it is doubtful whether we are warranted in applying these conclusions to the administration of the remedy by the mouth.

Nuclein and nucleic acid and nucleates have been used in tuberculosis and various infections, but their true value is undetermined.

They are transformed in the organism into purin compounds and may cause the amount of uric acid in the urine to be increased.

NUCLEIN—Nucleinum.—Nuclein is a modified nucleoprotein obtained by peptic digestion or by treatment with dilute acids.

Actions and Uses.—See Nuclein, Nucleic Acid and Nucleates.

Dosage.—0.5 to 1 Gm. (8 to 15 grains) three times a day.

NUCLEIC ACID—Acidum Nucleicum.—Nucleinic Acid.—Nucleic acid is an organic acid obtained from nuclein by the action of alkalies or by tryptic digestion.

It should contain phosphorus and nitrogen in the relative proportion of 4 atoms of P. to 14 or 16 atoms of N.

Actions and Uses.—See Nuclein, Nucleic Acid and Nucleates.

Dosage.—0.06 to 0.3 Gm. (1 to 5 grains) three times a day.

SODIUM NUCLEATE.—Sodii Nucleas.—Sodium Nucleinate. Sodium Nucleate is the sodium salt of nucleic acid.

Actions and Uses.—See Nuclein, Nucleic Acid and Nucleates.

Dosage.—Practically the same as that of Nucleic Acid.

Proprietary Preparations:

NUCLEIN, Abbott.—Sodium Tritico-Nucleinate, Abbott. A sodium nucleate derived from the wheat germ.

It is a grayish-white powder, soluble in water and insoluble in alcohol. On incineration it yields approximately 26 per cent. of ash, which is slightly alkaline and readily soluble in water. It contains phosphorus and nitrogen in the ratio of 1 atom of P. to 3.66 N. When the aqueous solution is decomposed by weak hydrochloric acid, a voluminous precipitate of the free nucleic acid is formed.

Actions and Uses.—See Nuclein, Nucleic Acid and Nucleates.

Dosage.—See Nucleic Acid.

Manufactured by the Abbott Alkaloidal Co., Chicago. Not patented or trademarked.

Nuclein Solution, Abbott.—Liquor Sodii Tritico-Nucleinatis Abbott.—A solution of Nuclein-Abbott containing approximately 10 Gm. of the salt in 100 Cc. (6 grains in one fluidram) of a menstruum containing 15 per cent. of alcohol. The solution is standardized to contain 1 mg. phosphorous in 1 Cc.

The aqueous extract of the wheat germ is treated with sodium chloride and acid, the precipitate digested with pepsin, neutralized with sodium hydroxide and purified by precipitation with alcohol. The resulting sodium tritico-nucleinate is dissolved in distilled water and 15 per cent. of alcohol as a preservative.

Nuclein Tablets, Abbott.—Each tablet is said to contain 0.13 Cc. (2 minims) of Nuclein Solution, Abbott.

PITUITARY BODY, DESICCATED—Armour.—Desiccated pituitary body—Armour, consists of the dried substance of the entire pituitary body of the ox, including the infundibulum and the anterior and posterior lobes without the addition of preservative or diluent. It is said to contain all the active principles naturally existing in the gland.

A light yellowish-gray powder, practically odorless and tasteless. One part represents approximately 4 parts of fresh gland.

Actions and Uses.—See pituitary gland.

Dosage.—0.06 to 0.2 Gm. (1 to 3 grains) three times a day.

Manufactured by Armour & Co., Chicago. Not patented or trademarked.

Pituitary Tablets.—Armour.—Each tablet contains desiccated pituitary body 0.06 Gm. (1 grain).

DESICCATED CORPUS LUTEUM—Armour.—Desiccated corpus luteum—Armour, consists of the fresh substance from the corpora lutea from cow's ovaries, removed, dried and powdered without the addition of preservative or diluent.

A yellowish powder, having a peculiar odor. Partly soluble in water.

One part represents approximately 5 parts of the fresh corpus luteum substance. It contains a true lipochrome which may be extracted by alcohol, ether or chloroform. On incineration, it should yield not more than 6 per cent. of ash.

Actions and Uses.—See Corpus Luteum.

Dosage.—0.03 to 0.06 Gm. (½ to 1 grain) twice daily.

Manufactured by Armour & Co., Chicago. Not patented or trademarked.

PHARMACEUTICAL PREPARATION ACCEPTED FOR N. N. R.

The following dosage form of an accepted proprietary article has also been accepted for N. N. R.:

Parathyroid Tablets, Armour.—Each tablet contains desiccated parathyroid gland 0.003 Gm. (1/20 grain).

(*To be continued*)

Therapeutics

INFANTILE DIARRHEA

Dr. Joseph E. Winters, New York, professor of diseases of children in Cornell University Medical College —according to a pamphlet recently received—read a paper on this subject before the Cleveland Academy of Medicine (April 15, 1910) in which he expresses his views in his usual terse and impressive manner. He reminds us that gastroenteritis and its associated diseases forms one-half of the whole number of infantile disorders and its mortality exceeds that of all of the zymotic diseases. The age at which death is likely to occur from these diarrheas is graphically shown by his statement that of 22,476 cases of infantile diarrhea, 88.8 per cent. were under 1 year of age. Of 19,886 fatal cases in the first year, nearly 70 per cent. were under 6 months, and 90 per cent. under 9 months. Of this entire number of deaths, less than 2 per cent. were breast-fed. This positively shows that fatal diarrhea occurs almost always in the nursing period, and almost always in bottle-fed or artificially fed infants. The cause, then, of infantile diarrhea is demonstrated to be germs that enter the child with its artificial food. As milk properly modified is generally the only proper food for the artificially fed child, it is to the milk that we must look for the cause of diarrhea.

It has been shown that milk cooled immediately after milking to 40 F. and kept at that temperature does not grow bacteria. The advantage of the upper classes in caring for milk as compared with the lower classes is shown by the fact that of fatal diarrheas only 1.2 per cent. belong to the so-called higher class. Economically, then, and of enormous social value is the necessity for cities, especially, to provide properly cooled milk for its infants. Pasteurization of milk may destroy germs, but not necessarily their spores and not the toxins that are produced by germs previously alive in the milk, all of which act to the disadvantage of the child, to say nothing of the fact that Pasteurized milk is not as easily digested as milk that has not been so treated. As pointed out by Winters, it is quite probable that many of the symptoms of toxemia shown by children who are suffering from diarrhea, such as prostration, delirium, convulsions, and even coma, to say nothing of incessant vomiting, may be due to the toxins contained in milk which are not destroyed by Pasteurization. In fact, Winters quotes an investigation of the Berlin Charité Hospital in which at this hospital it was found that "no amount of Pasteurization or sterilization had the slightest effect in preventing or controlling diarrhea."

To show the action of these bacterial toxins in the infant Winters quotes statistics of 634 fatal cases of infantile diarrhea. Of those who died during the first week (58 per cent.), one-half had bronchial pneumonia, and of those who died after the first week, not only bronchitis and bronchopneumonia were added causes of death, but there were found exudates into the pleura, nephritis and middle-ear catarrh.

It is generally recognized that a child with diarrhea cannot be made well until the intestines are thoroughly cleaned; in other words, surgical cleanliness as near as it can possibly be caused is a positive necessity. Intestinal mucous membrane folds, which are of necessity during health, for the retardation of intestinal contents for proper digestion and proper absorption and nutriment, are anatomic obstructions that become pathologic dangers when the same pockets retain putrefactive food products and abnormal bacteria and toxins. Therefore, as just stated, a thorough, complete and often repeated cleansing of the intestines with the best cathartics for this purpose, and then thorough washing with water from stomach to rectum, is the only proper etiologic treatment of the disease.

Winters thinks the most perfect cleansing cathartic is castor oil, and long years, almost ages, of experience has certainly demonstrated this drug to be the best for this purpose. To a child from 3 to 6 months old he advises a dose of a teaspoonful; from 9 months to a year, a dessertspoonful; and to a child from 1½ to 2 years, a tablespoonful. He administers the oil ice cold as a preventive of nausea, and repeats the dose in an hour if it is vomited. The oil must be given on an empty stomach; in other words, there must have been no nutriment given for two hours before, and nothing for two hours after, Winters thinks, not even water. For the next twenty-four hours certainly, and often much longer, he administers nothing but water to the child, and generally hot water. If there is much vomiting he would give a few drops of hot water on the tongue every ten minutes, and states that sometimes this quickly and completely checks the vomiting.

As a stimulant to the gastrointestinal secretions he advises the administration of ¼ grain of rhubarb with 10 grains of bicarbonate of sodium in a teaspoonful of water every two hours.

R	Gm.		
Rhei	30		gr. v
Sodii bicarbonatis	10	or	3iiss

M. et fac chartulas 20.

Sig.: Dissolve a powder in a spoonful of hot water and administer every two hours.

It is interesting to note in Winters' treatment of diarrhea the entire absence of stimulants, antipyretics, and astringents; in other words, the absence of drugging. While sometimes such treatment seems to do some good, probably in the majority of instances they do more harm than good, and the disturbance in the child is a disturbance of nutrition.

The cause having been eradicated, the subject for discussion is how and when to feed the child. Winters decries all of the various substitutes for milk, except in rare instances condensed milk, disapproves of the various meat juices and names almost the whole list of artificial nutriments as coming under his disapproval. He recalls to our mind the necessity of fat for the growing babe, reminding us that one-half of the dried residue of the body of the infant at birth is fat, and "the expenditure of heat in an infant 5 months old is 130 calories per kilogram of body weight," which seems to demonstrate the physiologic absurdity of attempting to feed a child with egg albumin and barley water, "which contain .25 and .02 per cent. of fat respectively," and which is a frequent substitute food during diarrhea. He also reminds us that the lymph of the intestinal exudate contains from 4 to 6 per cent. of proteid, almost as much as blood plasma, and this loss must be returned to the child, soon, if the child is to be saved, and he believes that only animal proteid will satisfy the need of the child; that vegetable proteid is not well handled by the child. The top half ounce from a quart bottle of milk contains 3 per cent. of proteid besides containing the proper amount of fat, and this is the nutriment that he believes the child should receive after 24, 36 or 48 hours of water treatment, especially in a child under 6 months of age.

For a child from 3 to 6 months of age suffering with diarrhea Winters' food prescription is to take the top half ounce from each of two quart glass jars of milk sixteen hours after milking, these bottles to have stood upright on ice for six hours before taking the top cream. It is, of course, as above stated, presumed that the milk should have been iced from the time of milking. Mix a teaspoonful of this cream with an ounce of cold, unboiled, filtered water, to which two teaspoonfuls of lime water have been added, heat to the feeding temperature, and give one ounce every four hours. Throw the rest away and prepare fresh at each feeding. He does not use milk sugar when there is diarrhea. Between the four-hour intervals of feeding, viz., on the alternate four hours, he would give, from the bottle, hot or cold water, one or two ounces, as deemed best. At this period, then, the nutriment and water alternate every two hours.

After two days, if the child is doing well, with no digestive disturbance, one ounce of the above food is given every three hours and the water discontinued. If the child is still improving in another twenty-four hours, one and one-half ounces of the same food is given every three hours. At the end of the next twenty-four hours the strength of the food is increased by taking the top half ounce from each of three or four quart bottles of milk sixteen hours after milking. Mix two teaspoonfuls of this cream with one and one-half ounces of cold, unboiled, filtered water and add three teaspoonfuls of lime water. Give two ounces of this every three hours. In five days the food is again strengthened.

The feeding for a child from 6 to 12 months of age who has diarrhea is as follows: Take the upper ounce from each of two quart bottles of milk sixteen hours after milking, which means six hours after the milk is delivered in the city. Mix two teaspoonfuls of this cream with one and one-half ounces of cold, unboiled, filtered water, and add three teaspoonfuls of lime water. Give one and one-half ounces of this every four hours, and water in between the feedings, as above. After two days, if the child improves, give one and one-half ounces of this food every three hours and discontinue the water. Gradually increase the amount first and later the strength of the food as the child improves.

If a child of 2 years of age has diarrhea he has reached the age when he needs more protein and can digest starch; in fact, at most any time from a little more than a year to several years of age Winters thinks that a complete change of food to proper, well cooked cereal will aid in curing the diarrhea, and sometimes acts almost as a specific.

If mucus persists in the stools, or the diarrhea has been going on for a long time before coming under treatment, Winters believes that irrigation properly done may be of value. Prolonged irrigation he thinks pernicious and large amounts of fluid injected he believes to be vicious. Enough injection to cause pain or frighten the child does harm even if it does not actually cause shock. Such continued inflammation may be improved by the injection of an ounce of glycerin and an ounce of warm water thoroughly mixed and injected by means of a small syringe, slowly and gradually, just beyond the internal sphincter. High injections Winters does not approve of at all.

When intestinal irritation or inflammation becomes subacute or almost chronic, neglected and mismanaged cases, as Winters terms them, he advises the use of condensed milk for a period, and believes that this is the best nutriment that can be given under these conditions, unless a wet nurse can be procured. If the child is much over 6 months of age and has been bottle-fed it is often difficult to make it take milk from the breast. These patients then should receive condensed milk for a time until the inflammation is cured. It should not be used after the patient has recovered.

For a babe 3 months of age with this subacute or chronic diarrhea Winters prepares the food as follows: One teaspoonful of canned sweetened condensed milk is dissolved in twenty-four teaspoonfuls of water which is actually boiling. One ounce of this mixture should be used for each feeding and the rest should be thrown away, as this food should be prepared fresh for each feeding. To the ounce prepared and cooled from the boiling point to the temperature for feeding add two teaspoonfuls of lime water, and this quantity of nutriment should be given every four hours, alternating with an ounce of hot water and two teaspoonfuls of lime water: in other words, the food every four hours and the water every four hours, alternating at two-hour periods. In forty-eight hours, if there is improvement, he increases the quantity of the nutriment to two ounces, to which has been added one-half ounce of lime water, and this is alternated with two ounces of hot water and one-half ounce of lime water. In another forty-eight hours, with improvement, he increases the frequency of the nutriment to two ounces of the condensed milk mixture with one-half ounce of lime water every two hours, and the water is discontinued. A week later, the inflammation being apparently cured, he increases the strength of the food to a teaspoonful of the condensed milk to sixteen of boiling water, and gives three ounces of such a strength mixture, with one-half ounce of lime water, every three hours. As soon as the weather is cooler and the condition of the child seems favorable, the condensed milk treatment should be changed to modified cows' milk.

In another article by Winters, which was read before the Brooklyn Pediatric Society, he gives formulas for the bottle feeding of delicate infants during the summer months, of which the following are a few samples:

FOR A CHILD THREE MONTHS OLD

Take the upper 3½ ounces from each of three quart bottles of milk at 2 p. m., viz., about six to eight hours after the milk is delivered to a family in the city. To this add 4 teaspoonfuls of milk sugar, 12 ounces of filtered water and 6 ounces of lime water. This will furnish seven bottles of 4 ounces each, and 4 ounces should be the nutriment administered every three hours.

FOR A CHILD SIX MONTHS OLD

Take the upper 6½ ounces from each of two quart bottles of milk at 2 p. m., as before. Add 4 teaspoonfuls of milk sugar, 14 ounces of filtered water and 6 ounces of lime water. This will furnish six bottles of 5½ ounces each, and feed this amount (5½ ounces) every three and one-half hours for six feedings in twenty-four hours.

FOR A CHILD NINE MONTHS OLD

Take the upper 9½ ounces from each of two quart bottles of milk at the same hour as above. Add 12½ ounces of filtered water and 6 ounces of lime water. This will furnish five bottles of 7½ ounces. To each 7½-ounce bottle, just before feeding, add one ounce of barley gruel and administer this amount every four hours.

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[*For other information see second page following reading matter*]

SATURDAY, AUGUST 6, 1910

THE PHYSIOLOGY AND PATHOLOGY OF THE PINEAL BODY

Of all the "ductless glands" the pineal body has disclosed the least concerning its reason for existence, not enough having yet been learned by the physiologists to afford a basis for even a working hypothesis. Because of its inaccessible location experimental investigation in the living animal has been unsatisfactory or impossible, and practically nothing has been learned by experimental feeding or by injection of extracts. While clinical and pathologic observations have added much to our knowledge concerning the functions of other organs of this class, these sources of information have not been of service in the problem of the pineal gland, for the simple reason that pathologic changes are almost unknown in this organ. About the only lesions described, except for a few instances of tubercle and gumma, are tumors, and in a review of the literature Pappenheimer[1] was able to collect in all but thirty-eight cases of pineal tumor.

On account of their rarity, and the possibility that through these tumors some light may be thrown on the mystery of the pineal body, Pappenheimer's review possesses considerable interest. Structurally the tumors described vary greatly, three main classes being differentiated by Marburg: first, cystic tumors, which represent either ependymal cysts or simple softening of neuroglia; second, teratomas, which seem to be relatively quite frequent; third, tumors composed of several different cell-types representing one embryonal layer only, these types being usually glia cells, ependyma cells, and pineal gland tissue.

With few exceptions the tumors have been observed in the first three decades of life, only three patients being above 40 years of age, and two between 30 and 40. In this connection there develops an interesting observation which is highly suggestive as to the function of the pineal body, and this is that in three cases in which the pineal tumor occurred in children under 8 years of age there was associated precocious sexual development, while in a fourth case a boy of 9 years showed excessive obesity.

This fact is of particular significance when we recall that tumors of the adrenal have also been found associated with precocious sexual development, and that all the evidence indicates a close interrelation of the ductless glands. Concerning this last point it may be remarked that in some of the cases of pineal tumor there was also found a persistent thymus. It is not so simple, however, to deduce from these three cases the influence that the pineal body may have on the generative organs, for a tumor of a ductless gland may mean either an exaltation or an impairment of functional activity. If the former, then it may be assumed that the pineal body has a part to play in sexual development, similar to that which has been ascribed to the cortex of the adrenal; but if the tumor has destroyed the gland, then the associated sexual changes must be ascribed to removal of some hypothetic inhibitory action possessed by the pineal body. As in two of the three cases the histologic structure of the tumor indicated that the growth consisted of a hyperplasia of the essential cells of the pineal body, Pappenheimer believes the evidence to favor the view that in these cases the sexual precocity is the result of an augmented function of the pineal body in the developing organism.

Taken all together, the evidence is not very abundant or very satisfactory, but it is perhaps the best indication that we have yet obtained concerning the function of this little outgrowth from the brain, and it represents the first contribution made by pathology to our knowledge concerning the physiology of the pineal body. As pathology furnished the first fruitful information concerning the physiology of the adrenal, the thyroid and the hypophysis, its suggestions concerning the pineal body are entitled to particular consideration.

1. Pappenheimer, A. M.: Ueber Geschwülste des Corpus pineale, Virchow's Arch. f. path. Anat., 1910, cc, 122. Brief abstract in THE JOURNAL, June 4, 1910, p. 1913.

SUN-BATHS AND COMMON SENSE

That too much exposure to the sun's rays may be not beneficial, but distinctly deleterious, has been asserted by various writers on the subject. At this season it may be relevant to call attention to a custom that is said to prevail in certain parts of Germany of lying naked for hours on the bank of some stream, entering the water from time to time, and then returning to the bank to lie in the sun, the purpose being to obtain therapeutic benefit from the sunlight by this return to nature.

Grawitz[1] has studied the effects of these prolonged sun-baths, and his conclusions are averse to the teachings of these apostles of the "natural life." He says that this prolonged exposure of the uncovered body is prejudicial to the human organism, producing irritability and nervousness, cardiac and circulatory disturbances, in addition to various more or less serious dermal

1. Grawitz, E.: Injurious Action of Sun-Baths, Deutsch. med. Wchnschr., Aug. 19, 1909, No. 33; abstr. in THE JOURNAL A. M. A., Sept. 25, 1909, p. 1066.

lesions. He also says that children taken to the seashore for the benefit of the air and the sunshine return brown and ruddy, but with unstable nervous systems, and thus lose the benefit of the summer outing, while if taken to the mountains, where most of the time is spent in the shade, they do well.

Woodruff[2] and O'Malley[3] in this country have also studied the question, the latter calling attention to the fact that people from northern Europe, as the Swedes, find the climate of the United States very trying, and that the excessive sunlight is a detrimental factor. He also calls attention to the fact that people who are inclined to be nervous do badly at the seashore; their vacations should be spent in the woods, where they may have the advantages of the open air without excessive sunshine.

Woodruff has made some larger deductions, and attempts to show by figures that blonds and the people from the northern countries with less sunshine, and of less intensity, when living in areas with much sunshine, develop criminal tendencies, insanities and other pathologic phenomena associated with the nervous system, and that tuberculous patients do not do well when subjected to too much direct sunlight. He asserts that man instinctively avoids the sun, and that primitive peoples have been shade-dwellers, even in those countries where selection has developed a protective excessive skin pigmentation. It is also asserted that the blond type deteriorates in this country, and but for the immigration from regions of less sunshine would disappear, only the pigmented types by selection and survival remaining.

The races in the temperate zone have for centuries accustomed themselves to the protection afforded by clothing; the practice of going without is only another of the foolish unscientific fads or so-called cures which are too extreme to be of benefit, or are even injurious. Moderation in the use of sunlight, as in the use of every other good thing, is the sensible rule to follow.

VITAL STATISTICS AND PREVENTIVE MEDICINE

Notwithstanding the grievous lack of adequate laws concerning vital statistics in many of our states, an increasing amount of valuable statistical work concerning public health is being published every year. We are led to this observation by examination of the annual reports of health departments of cities and towns throughout the country received here from time to time. They come not only from the large cities, but also from some of the smaller cities, many of which have well-organized health departments, with physicians, sanitarians, bacteriologists, inspectors, laboratories and systematic methods of conducting their affairs. Unfortunately, the lack of uniformity in the preparation of many local reports renders instructive comparison impossible. In almost every instance, however, the reports show that those in authority have a most gratifying grasp of the essential features of public health and sanitary problems —water, milk and other foods, waste and its disposal, drainage, and the problems of quarantine and the infectious diseases. It is a matter of regret that there still remain so many cities and communities that have not yet awakened to the vital importance of this work.

Characteristic of all these reports are the statements, made with evident satisfaction by the health officers, that the incidence and mortality of infectious and preventable diseases have been reduced in their communities. This sort of statement is well-nigh universal and shows that efforts at sanitation and prevention, though often expensive and tedious to carry out, are rewarded by tangible results.

The report of 1909 of Augusta, Georgia, a city of fifty thousand inhabitants, is an instance of such a report and such results. The figures in this report show that the death-rate in that city has fallen from 26.78 per cent. in 1880 to 12.78 per cent. in 1909. In addition to the mortality tables, it contains other comparative statistical tables concerning infections and contagious diseases in the white and colored races, a record of births, reports on social conditions, laboratory reports, inspections, hospitals, and reports on work done in the prevention of malaria, typhoid, tuberculosis, etc. It is an example of the systematic and valuable work being done in numerous other cities and towns.

These reports show that the work they represent is beginning to be recognized, as it must be some day, as the most important work in the government of any municipality, and that it must receive in future a greater share of financial support and cooperation to give it the greatest measure of effectiveness. When this recognition and support are extended in all communities, urban and interurban, when the states enact and enforce adequate vital statistics laws, and the national department of health is established, directing and assisting public sanitary work and collecting and collating vital and contagious and preventable disease statistics, then the problems of public health and the prevention of disease will be an open book, and conclusions that will point to their solution may be readily drawn.

In the meantime the efforts of isolated cities and towns, like those reported from Augusta, are most valuable as indications of what can be accomplished in the larger way by wider and more concerted effort. The most immediate desideratum is greater uniformity in the preparation of reports from various communities. It is to be hoped that concerted action on the part of local health authorities will soon attain this end and make this material available for purposes of study and comparison.

2. Woodruff, C. E.: Dangers of Excessive Sunlight in Tuberculosis, New York Med. Jour., Sept. 12, 1908; abstr. in THE JOURNAL, A. M. A., Sept. 26, 1908, p. 1106; A Study in Anthropology, New York Med. Jour., May 22, 1909; abstr. in THE JOURNAL A. M. A., June 5, 1909, p. 1884.

3. O'Malley, A.: The American Climate and the Northern European, Am. Med., November, 1909; abstr. in THE JOURNAL A. M. A., Jan. 2, 1909, p. 75.

CEREBELLO-RUBRO-SPINAL POLIENCEPHALITIS

It has been shown that the toxic-inflammatory effects of the ultramicroscopic causative factor of acute poliomyelitis are not expended exclusively on the ganglion-cells of the anterior horns of the spinal cord, but that contiguous portions of the cord suffer also. Likewise, the morbid process is not always confined to the cord alone, but it may attack also the medulla and the encephalon. We may, therefore, have varying combinations of symptoms, in accordance with the distribution of the lesions.

The classic picture of acute anterior poliomyelitis—the spinal paralysis of infancy and childhood—with its sudden onset, vomiting, diarrhea, fever, flaccid paralysis and slow improvement, is but too familiar, while the symptomatology of poliencephalitis is less constant and less well known. Involvement of the cortex may cause convulsions, hemiplegia, mental deficiency, and even epilepsy; involvement of the midbrain, disturbance in the functions of the third and fourth nerves; involvement of the pons, disturbance in the functions of the fifth, sixth and other nerves; involvement of the cerebellum, a coarse ataxia, with muscular hypotonus and possibly nystagmus.

When the disease attacks the so-called cerebello-rubrospinal system, the nerve-tract comprised between the dentate nucleus of the cerebellum and the red nucleus of the opposite side, by way of the superior cerebellar peduncle, for the one part, and the rubrospinal tract, or bundle of Monakaw, in its course to the opposite side of the spinal cord, for the other part, there results a well-defined group of symptoms, which are brought out in a report by Leonard Pearson[1] of four illustrative cases. The distinctive feature is a coarse, regular, intention-tremor exhibiting from three to five oscillations in the second. The movement is involuntary and can be restrained only for a brief period. Volitional movement of the affected part is attended with an irregularity in the tremor such as is seen in cases of multiple sclerosis. In addition, there is a certain measure of paresis and rigidity, so that, at times, a clinical picture suggestive of paralysis agitans may be presented. The tremor sets in suddenly and may be widely distributed, involving head, tongue, trunk, abdomen and limbs. It is associated with increased muscular tonus, rendering movement slow, stiff and awkward.

The disorder has certain points in common with poliomyelitis, namely, the fact that the patients are often robust and well nourished; the prevalence in summer and autumn; occurrence in early childhood; the varying degree of constitutional disturbance; the acuteness of the onset; the subsequent improvement, and the negative results from examination of cerebrospinal fluid.

1. Pearson, L.: Birmingham Med. Rev., April, 1910, p. 148.

Current Comment

PHARMACOLOGIC NONENTITIES

It is probably a fact that if an enterprising pharmaceutical house should put a milk-sugar tablet on the market under a fancy name, endow it with the marvelous properties that so many proprietary products are wont to have, and spend a small fortune in advertising it through medical journals—milk-sugar would become (under its proprietary name) one of the most popular of the "newer remedies." As a corollary we should read learned (?) articles gravely detailing the wonderful results from the use of milk-sugar, appearing in those medical journals which either carried advertisements of it or hoped to carry advertisements of it. Furthermore, should investigators publish the results of scientific investigations of the product, showing that the therapeutic potency of milk-sugar was zero, such investigators would unquestionably be referred to as "theorists," "therapeutic nihilists" and "mere impractical faddists." That this hypothetical case is not overdrawn is proven by conditions that actually exist. A product, which has been variously called a "glucosid," a "concentration," and "the active principle" of *Cactus grandiflorus*, has been proved by practical tests and by scientific experiments—repeated over and over again by competent observers—to have no more therapeutic value than milk-sugar. Yet it is advertised, in one or two different forms, with a lavishness that indicates a very general use. Another series of scientific experiments and their results dealing with the same product or products are given in this issue of THE JOURNAL;[1] they merely corroborate previous researches along the same line and are published because of the widespread use of this pharmacologic nonentity. As a central theme for a treatise on the "Psychology of Advertising," cactina pillets and cactin may have their uses; as medicaments they should be relegated to the therapeutic scrap-heap. Some day the popularity of these inert products with physicians will be looked on as an example of the credulity of our profession—and rightly so.

FOREIGN APPRECIATION OF THE COUNCIL ON MEDICAL EDUCATION

It is interesting to look back over the last few years and see the change in the references to America in the medical press abroad. Formerly most of the references made were to the "adventuresomeness" of certain American surgeons, to the "diploma-mills," to the pushing into prominence of "half-baked ideas," and other references equally uncomplimentary. But a marked change has taken place. The improved organization of the American medical profession, bringing with it the creation and work of such permanent committees as the Council on Pharmacy and Chemistry and the Council on Medical Education are resulting in an appreciation abroad far greater than Americans realize; and, in some respects, the work is appreciated even more across the Atlantic

1. Lyon, E. P., and Qualls, G. L.: "Experiments with 'Cactina' and 'Cactin,'" p. 455.

than by the rank and file at home. A recent instance of this is the recognition now given to the work of the Council on Medical Education. This Council has been listed among the international organizations of the world in a pamphlet, "L'Internationalisme Médical,"[1] compiled partly to facilitate the work of the new permanent bureau for the organization of international medical congresses. The author, Dr. P. J. Eijkman, of The Hague, has the reputation in Europe of being a talented and indefatigable leader in the campaign against quacks, and all matters affecting the welfare of the profession. He refers in this pamphlet to 192 different international organizations already under way which are medical or connected more or less loosely with medicine, and among these is mentioned the Council on Medical Education. He says: "There is one association whose efforts deserve special mention, namely, the Council on Medical Education of the American Medical Association. It is incessantly striving to bring about greater uniformity in the preparation of physicians; unfortunately limiting its efforts to America, its work is not strictly international. However, if its efforts bear fruit and its example is followed, the time is not far distant when an international standard of requirements for the practice of medicine will be reached. . . . It is certain, however, that opinions will differ in regard to the requirements for the uniform standard, but all those who have read Schwalbe's pamphlet summarizing the laws in regard to practice of foreigners in the various countries cannot fail to acknowledge that the laws in vogue put altogether too many obstacles in the way of the practice of medicine outside of one's own country."

1. This pamphlet is published in French and is issued by the Bureau Préliminaire de la Fondation pour l'Internationalisme, 6 Van Lennepweg, La Haye, Pays-Bas. (The Hague, Netherlands.) Price 2 francs (40 cents).

CONSUMPTION-CURE FAKES

It is probable that in no other organic disease does the psychic element play the important part that it does in consumption. No other class of patients is so easily influenced for better or worse than that suffering from pulmonary tuberculosis. How great a factor the mental one is was strikingly shown by the experiments of Albert Mathieu. This physician gave his tuberculous patients to understand that a wonderful cure for tuberculosis had been discovered in the shape of a serum to which he gave the name "Antiphymose." To these patients he gave injections of what they supposed to be this hypothetical serum but what actually was a small quantity of physiologic salt solution, and carefully noted their condition. A remarkable change was seen; the appetite improved, the temperature diminished, the cough, expectoration and night-sweats were mitigated and the patients began to gain in weight. With the discontinuance of the injections the old symptoms returned. Mathieu's experiment was merely a scientific proof of a fact that is familiar to every physician who has treated phthisical patients. Any change in treatment, or in the individual giving the treatment, results in a temporary improvement of the patient. It is this curious psychologic fact that makes the tuberculous patient a pitifully easy victim of those unconscionable villains who advertise to cure consumption. The speciously worded advertisement, the exaggerated claims, the favorable testimonials—all conspire to convince the consumptive that here at last is the long-hoped-for "cure." Hence the profitableness of this most despicable branch of quackery. In the Pharmacology Department of this issue another of the almost innumerable "consumption-cure" fakes is described and the methods of its exploiter detailed. As the viciousness and cruelty of this form of fraud is borne on one, it seems unbelievable that a civilized community should tolerate it. To the disgrace of our laws be it said, the consumption curer and the cancer quack are allowed to ply their nefarious trade practically unmolested by state or municipal authorities. Generally speaking, the only time these ghouls are interfered with is when the federal authorities take action for some infraction of the postal laws, for so long as the scoundrels keep within the somewhat broad requirements of these laws they are apparently immune from arrest. Will the time not come when an enlightened public opinion will either demand laws which will make the existence of such frauds legally impossible, or will demand that a construction be given to existing laws so that the necessary protection may be afforded the sick and helpless?

AN APPRECIATION OF MEDICAL INVESTIGATORS

In the British House of Commons, June 29, Colonel Seeley, under-secretary for the colonies, mentioned appreciatively the heroism of the investigators of sleeping-sickness, especially of Sir David Bruce, who had gone with his wife into the heart of the disease-ridden section where nearly every one was sick and no patient recovered. There were many other investigators, some of whom had succumbed in their efforts to find out the cause and remedy for the plague. Colonel Seeley said that when the history should be written of what had been done by these brave men it would perhaps be considered "as giving more striking proof of the ability of men to overcome natural fear than almost anything else in the annals of mankind." It is pleasing to see such recognition of the heroism of medical men from high official sources. Such deeds are not done under the excitement of battle. The risks are deliberately taken for human good and the danger fully appreciated, but too seldom are they thus publicly honored.

WHO PAYS?

An interesting question connected with the proprietary medicine business, worthy of just a minute's consideration, is "Who pays the freight?" So far as "patent medicines" are concerned, it is pretty evident that the burden falls directly on the layman. But what about the "ethical proprietaries?" Here the taxation is less direct. We refer elsewhere to a product—cactina pillets—that for over a third of a century has been advertised to and used by the medical profession and from the sale of which its exploiter is reported to have made millions.

Therapeutically it appears to be worthless; commercially it has been a gold mine. Even now, in spite of what has been published regarding it, it must be having a profitable existence, for we find it advertised in over fifty medical journals. The amount of money that such a use of advertising space represents only publishers of medical journals can realize. Who pays for it all? It certainly is not the manufacturer nor the medical journals, since both profit by the exploitation of this therapeutic unreality. It must then be either the physician or the patient. Which is it? If the patient, the question becomes a moral one which is respectfully referred to the medical journals which advertise it and to doctors who prescribe it.

CRIPPEN

Last week we commented on the quackish career of Dr. Crippen, just arrested as a wife-slayer, and incidentally mentioned that he was for a while a resident of Philadelphia. It now appears that when in that city he was in the employ of "Professor" Munyon, whose picture, as he stands pointing heavenward past an aggressive pompadour, is as well-known to newspaper readers as is that of Lydia Pinkham. According to the *Medical Press and Circular*, Crippen went to England to manage the Munyon "remedies" in that country. There is a certain element of poetic justice in the case; if Great Britain were not the fertile field for quackery that it has become, Crippen probably would have remained on this side of the Atlantic, and that country would have been saved the expense of catching and prosecuting him.

LEPROSY

Press dispatches from Honolulu announce that Dr. Walter Brinckerhoff has expressed the opinion, based on his observations for the last four years at the leprosy experiment hospital at Molokai, that the use of alcohol by the natives is largely responsible for the leprosy occurring among them. This opinion is published on the eve of an election in which the license or no license of liquor sales is a question for decision, and it is therefore the subject of general discussion, not only by medical men, but by the public at large.

PREVENTION OF ACCIDENTS TO DEFECTIVES

An interesting discussion before the American Association for Study of the Feeble-Minded is recorded in the *Journal of Psycho-Asthenics*. The subject was the means of avoiding trouble from accidents to patients in institutions for the feeble-minded and epileptics. This discussion brought out the fact that in some institutions the details of every trivial injury are immediately written in the daily records. Then, if a visitor inquires about a bruise visible on a patient, it is possible to show just when and how it was received, without depending on mere verbal explanations which may or may not be believed. The official record usually satisfies the inquirer. The idea is a good one. It is impossible to prevent occasional injury to such patients, either from restraint or from their own violent actions, and every measure that tends to allay public apprehension on the subject should be adopted.

Medical News

CALIFORNIA

School of Tropical Medicine.—Plans have been formed by the health department of San Francisco for the formation of a school of tropical medicine for the study and treatment of tropical diseases in the port of San Francisco.

Few Fourth of July Accidents.—According to official report of the chief surgeon of the Emergency Hospital, San Francisco, only five cases of injury were reported in San Francisco on the Fourth of July. Last year the number was forty-five and the year before more than seventy.

Advertising Doctor Goes to Prison.—The appellate court in San Francisco has affirmed the judgment of the superior court against J. J. Arberry, who was charged with obtaining money under false pretenses. It was shown that he practiced medicine under the name of Dr. Taylor & Co. and accepted money from a patient whom he claimed had heart disease when there was nothing the matter with the patient. Arberry is now in prison.

Plague Conditions.—No case of plague has occurred in San Francisco in the last twenty-eight months, but a campaign against rats has been kept up. Thirty laborers are still employed exclusively as rat trappers. During May over 8,000 rats were trapped and many more poisoned by material placed within the sewers. The work has been under the supervision of Acting-Assistant Surgeon George M. Converse, U. S. P. H. and M.-H. Service.

Meeting of Milk Association.—The officers of the California Association of Medical Milk Commissions met in connection with the Santa Clara County Medical Society, at San José, July 20, the object being to arouse interest in the organization of local milk commissions. The meeting was addressed by Dr. George F. Barker, inspector in charge of the Bureau of Animal Industry of the United States Department of Agriculture. A number of dairymen attended the meeting. Other addresses were made on allied subjects. At the meeting Dr. Charles M. Richards, San José, was elected editor for Santa Clara county of the state medical society journal.

Personal.—Dr. Bert J. Lasswell has resigned as health officer of Quincy and has been succeeded by Dr. F. D. Walsh.—— Dr. C. S. Allen has been made physician at the county farm at Los Angeles, to succeed Dr. Dumont Dwire, resigned.——Dr. Charles A. Tillotson, Culbertson, Mont., is now physician at the emergency hospital of a large oil company at Coalinga. ——Dr. Harold S. Warren, Coalinga, city health officer, has received an appointment as deputy county health officer for Fresno County, thus giving him jurisdiction outside the corporate limits of Coalinga.——Dr. H. B. Graham, San Francisco, formerly a member of the faculty of the University of Vienna, has returned to California.

Hospitals and Charities.—The staff of doctors for the clinic conducted by the Catholic Humane Bureau, 597 Oak Street, San Francisco, has been appointed, with Dr. Gerald J. Fitzgibbon at its head.——Mrs. Whitelaw Reid, founder of the Red Cross Guild Hospital at San Mateo, will erect two additional buildings for the use of the hospital, to cost $100,000.——The Emergency Hospital at San Francisco treated over 25,000 cases during the year, the ambulance calls reaching over 4,000.—— The New Harbor Hospital, San Francisco, opened Aug. 1. ——Land has been purchased at Bakersfield by the Catholic diocese for the erection of a $50,000 hospital to be called the New St. Francis Hospital, taking the place of the old St. Clair Hospital.——The Masonic Home at Niles is building a new $40,000 hospital.——Berkeley dispensary and Berkeley charity organizations have joined their forces and will be established in new quarters at 1910 Kittridge Street.——The state board of health has established a substation of the state hygienic laboratory at Fresno, which is to have charge of all examinations in the counties from the Tehachapi mountains as far north as Stockton. A substation was also established at Los Angeles a year ago. The plan has been found to work admir-

ably.——**A $35,000 addition to Clara Barton Hospital, Los Angeles, is now under construction.**——**The San Joaquin Hospital Association has been formed at Stockton with a capital stock of $200,000. A non-sectarian hospital costing $125,000 will be erected at once.**

ILLINOIS

Aurora Health Order.—Dr. Augustus R. Reder, health officer of Aurora, has issued to householders and property owners of the city a set of eleven rules in regard to personal hygiene and public sanitation which have attracted attention throughout the country. Rule eight requests all persons to bathe at least once a week.

Hospitals.—The great need of a public hospital in Sterling has been brought to the attention of the city council and the institution already in the city will probably be taken over by the city government.——The new Monmouth Hospital at Monmouth is now under construction. Dr. Edward L. Mitchell is a member of the building committee.——The new hospital for consumptives at the State Hospital for the Insane, Bartonville, is nearing completion.

Personal.—Dr. Francis E. Melugin, Thomson, recently underwent a surgical operation at the Clinton Hospital.——Dr. Clinton Helm, a practitioner of Rockford for thirty years, was recently stricken with paralysis.——Dr. Hiram T. Hardy, Kaneville, is in Wesley Hospital, Chicago, on account of an operation for gall-stones.——Dr. Charles True, Kankakee, is in a serious condition from a stroke of paralysis.——Dr. William J. Cheany, Petersburg, has been appointed county poor physician.——Dr. Elbert E. Clark, Danville, sails August 6 to attend clinics in Germany.

Chicago

Personal.—Dr. Stephen W. Cox has been appointed United States Pension Examining Surgeon in place of the late Dr. John W. Tope, Oak Park, and has been assigned to duty on the first pension board of Chicago.——Among the Chicago members of the American Society of Clinical Surgery who recently visited England as the guests of the English surgeons, Drs. A. D. Bevan, Frank Billings, M. L. Harris and L. L. McArthur have returned.

Care for Knights.—Elaborate preparations are being made to care for the health of the Knights Templar, who hold a conclave in Chicago next week. The Bulletin of the Department of Health for the present week contains much advice to the conclave. Among the healthgrams, presumably for their benefit, is the following: "Alcohol has hammered hob nails into many a man's liver." The knights are advised to drink lemonade and buttermilk and Lake Michigan water, which latter is declared to be harmless when not mixed with whiskey.

Chicago Medical Colleges and the Licensing Board.—Some time ago the Illinois State Board of Health declared the National Medical University—one of the Chicago "night" medical schools—not in good standing. The dean of this school now charges that he paid a fee to a Chicago lawyer-legislator for the apparent purpose of influencing the State Board of Health to reinstate the school. This dean further charges that five or six other medical colleges in Chicago are paying money to keep in the good graces of the State Board of Health. All of the charges are denied, both generally and specifically, by the board, and the governor and the state's attorney have each started investigations of the whole matter.

IOWA

Infantile Paralysis.—At the instance of Dr. Thomas U. McManus, Waterloo, of the State University of Iowa, the state board of health has taken up the investigation of infantile paralysis. An expert will be sent from Washington by Surg.-Gen. Walter Wyman, U. S. P. H. and M.-H. Service, to aid in the investigation.

Board Adopts Higher Requirements.—It is reported that at a meeting of the Iowa State Board of Medical Examiners, held last week, it was decided to raise the minimum of preliminary education to be required after Jan. 1, 1911, to two years of collegiate work. This is in support of the three medical schools of Iowa, all of which have adopted a similar requirement to be enforced this fall and thereafter.

Personal.—Dr. Benjamin R. McAllaster, for many years head physician at the Cherokee State Hospital, has been appointed superintendent of the State Hospital at Jamestown, N. D.——Dr. Albert C. Moerke, Burlington, has been elected president of the state board of health.——Dr. George E. Decker, Davenport, has been elected chairman of the state board of medical examiners. Dr. Guilford H. Sumner, Waterloo, has been elected secretary of the above organization.——Prof. Henry Albert, Iowa City, was elected director of the state laboratory, and Prof. Charles M. Kinney, Des Moines, state chemist.

MARYLAND

Baltimore

Improvement to Be Made.—The Union Protestant Infirmary is about to undergo improvements at a cost of about $5,000.

State Board.—The Board of Medical Examiners of Maryland announces that ninety-three of the candidates who took the June examinations were successful and will obtain the license to practice. The board elected the following: President, Dr. Herbert Harlan, Baltimore; vice-president, Dr. B. W. Goldsborough, Cambridge; secretary-treasurer, Dr. J. McPherson Scott, Hagerstown.

Personal.—Among those sailing for Europe July 30 were Drs. J. B. Schwattra and Jennie N. Browne, and Dr. W. C. Lyle, Augusta, Ga.——Dr. Gideon Timberlake has been made associate professor of genitourinary diseases and Drs. Nathan Winslow, William H. Smith, William D. Scott, Jr., and G. C. Lockhard have been made associates in various departments at the University of Maryland.

MASSACHUSETTS

Infantile Paralysis.—Springfield has an epidemic of infantile paralysis, more than fifty cases having been reported within six weeks. Surrounding towns also report a number of cases.

Summer Medical Lectures.—Harvard University, medical department, is giving a series of lectures to students of the summer school and to the medical profession twice weekly at 5 o'clock. A schedule of interesting subjects has been arranged.

Floating Hospital.—The Boston Floating Hospital has opened for the season. The boat leaves the pier at North End Park, Commercial Street, daily at 9 a. m. and returns at 5 p. m. Age limit is 5 years. Mothers are permitted to accompany their children.

Prendergast Camp.—The Prendergast Camp, near Mattapan, conducted by the Boston Association for the Relief and Control of Tuberculosis, will hereafter admit cases of unarrested and incipient tuberculosis. Formerly only arrested cases were admitted.

Extension for City Hospital.—The trustees have purchased land at Harrison Avenue and Northampton Street, Boston, for $67,000, on which will be erected an extension to the City Hospital at a cost of $165,000. This extension is rendered necessary by the overcrowding of the hospital.

State Hospital for Nervous Troubles.—Under a recent law of the legislature the governor has appointed a commission, consisting of Dr. Owen Copp, Brookline; Dr. Burnham R. Benner, Lowell, and Dr. William N. Bullard, Boston, to investigate and report on the establishment of a state hospital for treating cases of nervous breakdown.

Personal.—Dr. Theobald Smith, bacteriologist to Harvard Medical School, has been given the degree of doctor of science by Harvard.——Dr. and Mrs. Alfred Saenger, Hamburg, Germany, are the guests of Dr. and Mrs. L. Vernon Briggs at Manchester-by-the-Sea.——Dr. Thomas F. Harrington, Boston, and Dr. George S. Mathews, Providence, R. I., have sailed for Europe.

MISSISSIPPI

Clinical Department Discontinued.—Owing to the failure of the last Mississippi legislature to make an appropriation for the support of the medical department of the University of Mississippi, which was established last year at Vicksburg, the trustees of the university have decided to discontinue that portion of the medical course, retaining only the work of the first two years at Oxford.

Reporting Tuberculosis.—Secretary Samuel H. McLean, of the State Board of Health, is sending out blanks to physicians for reporting cases of tuberculosis as provided for in the recent act of the legislature. The law in regard to reporting these cases will be enforced rigidly. Dr. Walter S. Leathers, recently appointed as agent of the Rockefeller Foundation, director of the campaign of sanitation and hygiene being waged by the state board, has commenced the publication of a series of bulletins on tuberculosis, endeavoring to make the people of Mississippi fully acquainted with the methods of fighting tuberculosis.

MISSOURI

Personal.—Dr. Louis W. Luscher has been appointed superintendent of the General Hospital, Kansas City, to succeed Dr. G. Wilse Robinson, resigned.——Dr. Milton P. Overholser, Harrisonville, and Dr. Ira W. Upshaw, St. Louis, have been appointed on the State Board of Health. Dr. Overholser succeeds Dr. Albert H. Hamel.——Dr. R. S. McGinniss, St. Louis, has been appointed to succeed Dr. Albert J. Campbell as surgeon of the Missouri Pacific shops at Sedalia, taking effect August 1.

Heads Association.—Governor Herbert S. Hadley has been elected president of the Missouri Association for the Relief and Control of Tuberculosis, to succeed Dr. William Porter, St. Louis. An aggressive campaign against tuberculosis has been planned, and Dr. James Stewart, head of the department of hygiene of the St. Louis Board of Education, accompanied by several prominent physicians, began a tour of the state August 1 in a special car furnished by the Frisco Railroad. Miss Winnifred Doyle will precede the car by about a week and form local committees to assist with the work in the various towns.

NEW JERSEY

Personal.—Dr. Walter Reynolds, a member of the board of education, of Atlantic City, was given the degree of LL.D. by Villanova College at this year's commencement.

School Age Limit.—The recent session of the New Jersey Medical Society in a resolution declared that the minimum age for the children to be admitted to the public school should be raised from 5 to 7 years.

School Medical Inspection.—Boards of education of the state are finding great difficulty in obtaining medical inspectors for the schools under the law recently passed by the legislature. The physicians of the state have fixed the price of $1 for each pupil inspected and opposition is raised to the inspection by parents, who object to public inspectors and who say that they have their own family physicians.

The Health Officers As Police.—The Department of Health of Camden decided on July 25 to appoint the inspectors of the board as special policemen to arrest all violators of the anti-spitting ordinance. It is planned to station these men at the ferries and to arrest all who spit on the sidewalks. The Board of Health proposes to see that the ordinance forbidding the keeping of poultry, swine or goats within the city limits is enforced.

NEW YORK

Society Election.—The eleventh annual session of the Lake Keuka Medical and Surgical Association was held at Grove Springs July 21 and 22. The following officers were elected: President, Dr. Ralph R. Fitch, Rochester; vice-president, Dr. Charles L. Stiles, Oswego, and secretary-treasurer, Dr. H. B. Nichols, Syracuse. The next annual meeting will be held at the same place.

Personal.—Dr. Charles W. Pilgrim, superintendent of the State Hospital at Poughkeepsie, has gone to Europe.——Dr. Albert Warren Ferris, president of the State Lunacy Commission, has sailed for Scotland to secure information regarding the construction by the state hospital commission of a hospital in Yorktown on Mohansic Lake.——Dr. Robert E. Doran, first assistant superintendent at Willard State Hospital for the Insane, has been selected as state medical inspector for the State Lunacy Commission.

Laws Against Stream Pollution.—Two legislatures having failed to strengthen the laws against pollution of public waters, application has been made to the governor for executive action under existing laws as indicated in the official report of the state commissioner of health. It was found that legislators who privately favor the recent bill voted against it out of "courtesy" to associate legislators. Sanitarians are much aroused and declare that there is no valid reason for opposition to the bill and characterize the action of the legislature as "misrepresentative government."

New York City

Care for Many Poor.—The New York Association for Improving the Condition of the Poor announces that on July 26 1,000 mothers and babies were sent to the seashore for the day. During the recent hot weather the number has ranged from 600 up to the high figure of the twenty-sixth. One feature of the work of the association this summer is the talk on the preparation of food, with a view to health and economy, which is given daily on different recreation piers.

City Death Rate Decreases.—There was a decrease of 14 per cent. in the death rate among infants for the week ending July 23. However, the total number of deaths of infants under one year was 76 more than for the corresponding week of last year and for children under five from diarrheal diseases 69 more than for the same week of 1909. The death rate for the week was 17.18 per 1,000 population compared with 16.17 for the corresponding week of last year. There were 674 deaths in tenements and 582 in institutions out of a total of 1,552 deaths.

Personal.—Dr. Alonzo S. Tredwell, Brooklyn, sustained rather severe injuries in an automobile accident recently.——Dr. Edwin A. Spies, ambulance surgeon of the Williamsburg Hospital, sustained a dislocated shoulder in a collision between his ambulance and a trolley car.——Dr. John B. Byrne, Jr., Brooklyn, has been appointed private clerk to Coroner Rooney of that borough.——Dr. Michael J. Thornton has been appointed assistant alienist at Bellevue Hospital. He has been mental examiner at Ellis Island for the past four years.——Dr. W. Gill Wylie and Dr. and Mrs. D. Hunter McAlpin have sailed for Europe.——Dr. Glentworth Reeve Butler, Brooklyn, has been appointed a member for three years of the State Board of Medical Examiners.

NORTH CAROLINA

Hookworm in Soldiers.—Dr. Samuel Westray Battle, surgeon-general of the national guard of North Carolina, has arranged for a critical study of the excreta of every soldier attending the annual encampment this year with a view to ascertaining the prevalence of hookworm disease. The state board of health will cooperate by affording laboratory facilities.

Personal.—Dr. D. A. Stanton, High Point, secretary of the state society, has been nominated by the Republican party to represent Guilford County in the house of representatives for the ensuing two years.——Dr. Armisted K. Tayloe, Washington, N. C., has been commisioned assistant surgeon in the North Carolina national guard with the rank of first lieutenant.

OHIO

Abolishing the Drinking Cup.—Director Orr of the Cleveland public schools has announced that the drinking cup has been abolished in all the schools of Cleveland and that the sanitary drinking fountains will be used in the future.

Taking Care of the Babies.—On account of the fact that every hospital in the City of Cleveland has been filled with sick babies, open-air wards have been established on the Andrews lawn, Euclid Avenue and Thirtieth Street, at the babies' dispensary, where twenty-six sick babies can be cared for.

Decisions Regarding Medical Examination.—By a recent decision of the Ohio courts the state board cannot compel applicants for medical certificates to go to Columbus, the state capital, for examination, but the board must conduct them in all large cities. The board held an examination in Cincinnati July 19, the first held outside of the state capital, when twenty-two applicants took the examination.

Personal.—Dr. Thomas P. Johnston of the Protestant Episcopal Hospital, Columbus, has been appointed lieutenant in the O. N. G. and assigned to duty with the Second ambulance company, which will go into camp at Marietta.——By order of the adjutant-general's department of the Ohio national guard the following appointments of officers of the medical corps have been made: Maj. Joseph A. Hall, Cincinnati, acting assistant surgeon-general; Maj. Frederick C. Weaver, Dayton, director of field hospitals; Maj. Sterling B. Taylor, Columbus, sanitary inspector, and Maj. Harry H. Snively, Columbus, director of ambulance companies, and to continue in command of the Second ambulance company.

PENNSYLVANIA

To Care for Insane at Home.—The court of Pottsville on July 25 ordered the erection of a new insane asylum for Schuylkill County to accommodate 650 patients. The action renders possible the withdrawal of the county's 400 patients from the state institutions by providing a home for them in their own county.

Typhoid at Harrisburg.—Thirteen cases of typhoid fever reported by physicians a few days ago have caused an investigation to be made on Harrisburg's milk supply. The city water is filtered and this has reduced the typhoid rate below

that of any other city in the state. As the examination of the water shows good results, the state and city authorities are looking into the surroundings of all dairies.

Infantile Paralysis.—Infantile paralysis continues to prevail throughout the state and it is estimated that between 50 and 100 cases are present. The malady is not limited to any one section, but seems to be more or less general; however, the most cases have been reported from the counties of eastern Pennsylvania. The disease is being investigated by State Commissioner of Health, Dr. Dixon, and his assistants.

Tetanus Antitoxin Results.—The State Department of Health has furnished tetanus antitoxin for the treatment of twenty-nine patients who were injured in accidents with explosives July 4. The reports received from the physicians using the state's antitoxin up to date show that not one of these patients developed lockjaw. The department feels, therefore, that the plan of distributing antitoxin was well worth the money appropriated by the state.

Department of Abnormal Psychology.—As announced last week, the University of Pittsburg will establish in connection with its medical department a laboratory of abnormal psychology, under the direction of Prof. J. H. White and Dr. Edward E. Mayer. The hospital school for backward children, under the medical direction of Dr. E. Bosworth McCready, is an entirely separate institution, but was erroneously mentioned in the news item in connection with the department of abnormal psychology.

Campers Have Scarlet Fever.—The local health authorities at Norristown are much concerned over two boys who returned home ill from a camp at Betterdon, Md., and were found to be suffering from scarlet fever. They were members of a large camping party and were only in camp a few days when many of the boys were taken sick. Inspector Whitcomb notified the State Board of Health of Maryland and the Pennsylvania Board of Health of the many coming from the camp and going into various parts of the state, in the hope of preventing the spread of the disease.

Personal.—A state tuberculosis exhibit has been opened under Medical Inspector John A. Bouse in the Jefferson Avenue School at Bristol.——Dr. H. H. Wilford, Bangor, narrowly escaped death in the Delaware River at Foul Rift while attempting to shoot the rapids. He was rescued in a spectacular manner by friends.——Dr. George S. Criswell, Franklin, has been made a member of the board of examiners of the state institution for feeble-minded at Polks, to replace Dr. S. M. Jackson, deceased, and Dr. Marshall Phipps, Franklin, to replace Dr. W. W. Echols, deceased.

Philadelphia

City to Make Malaria Blood Tests.—Dr. Joseph S. Neff, director of the Department of Health and Charities, announced July 25 that Dr. C. Y. White, Jr., chief of the bacteriologic department, will hereafter make official blood tests for diagnosing malaria at the request of physicians. The department has been giving its aid for several years by making tests of typhoid fever, diphtheria and tuberculosis. Milk is also tested to determine whether it is infected.

Infantile Paralysis Reported.—As a result of the request, recently sent out by the Department of Health and Charities to physicians, two cases of infantile paralysis have been reported in Philadelphia. One is a child of two years old in West Philadelphia, and the other a child in Roxborough. These cases will not be quarantined, but other children will be kept away and the progress of cases, with all the surrounding facts of environment, will be carefully watched and reported.

Sudden Increase in Typhoid.—Fifty-two cases of enteric fever were reported for the month of July and gave rise to the suspicion of a possible defect in the city filtration system. This uneasiness was set at rest, however, by the investigation of the cases by the board of health, who have shown that the majority of the cases were contracted outside of Philadelphia. All of the patients were absent from the city for a week or more before the disease made its appearance, and had been contracted by the patients during their vacation in places where the drinking water was impure.

Nursery on Recreation Pier.—Under the auspices of the Department of Public Health and Charities and the Bureau of Municipal Research the Chestnut Street recreation pier nursery was opened July 27. Mothers can take their infants there and receive medical attention, while the nurse in charge will show them how to bathe and care for the young babies during the mid-summer weather. Within a few days a modified milk station will be opened on the pier, with complete appliances for heating milk, sterilizing bottles and nipples. Further improvements are contemplated, chief among them being various amusements for the youngsters, such as sand piles, hammocks, swings and cots.

Gift to Jefferson.—Mr. Daniel Baugh has purchased a large building at Eleventh and Clinton Streets and presented it to Jefferson Medical College. The building, formerly occupied by the Pennsylvania College of Dental Surgery, and valued at $50,000, contains two commodious lecture rooms and three large floors adapted for laboratory purposes. This addition will give the faculty an opportunity to transfer the anatomic and physiologic laboratories to the new quarters, and the extension of the clinical laboratories in the college building at Tenth and Walnut Streets, which are readily accessible from the dispensaries and wards of the hospital. The enlarged laboratories will be devoted to the instruction of advanced students in the junior and senior years.

Personal.—Dr. John Funke, demonstrator of morbid anatomy at Jefferson Medical College, resigned to take a position in the department of pathology at the Atlanta (Ga.) College of Physicians and Surgeons.——A testimonial reception was tendered to Dr. M. F. Mossel of the Douglas Memorial Hospital, at Musical Fund Hall, July 28.——Dr. Edward A. Leonard was advanced to the position of assistant physician to the insane department of the Philadelphia General Hospital, which was recently made vacant by the resignation of Dr. Samuel Stern.——Drs. Charles H. Frazier and Edward Martin have returned from abroad.——Dr. Frances R. Packard sailed for Europe July 28.——Dr. Elmer E. Funk has been appointed chief resident physician of Jefferson Hospital.——Dr. Harry Hudson has been appointed professor of orthopedic surgery in Temple University.——Dr. E. L. Klopp has been made chief of the new surgical dispensary of Jefferson Hospital and Dr. Arthur Davidson has been made chief of the orthopedic dispensary.——Dr. I. Franklin Cohn, U. S. N., has returned to the U. S. Naval Hospital, Philadelphia, from Washington, after having been promoted to the rank of passed assistant surgeon.

TEXAS

Hookworm Meeting.—At a recent conference of the members of the state board of health with Dr. Wickliffe Rose, of the Rockefeller Hookworm Commission, the action of the state board in refusing to participate in the Rockefeller hookworm fund was reconsidered, and it is now probable that a portion of the fund will be expended in Texas.

Death Rate Too High.—The bulletin of the Texas State Board of Health for June shows that while the average death rate from tuberculosis in the United States is 173 for each 100,000 population, the rate for Texas is 186. The board declares there is no justification for such a high rate in Texas and makes an appeal to the health authorities and people of the state to reduce this mortality. In comparing the six largest cities of the state the mortality rate per 1,000 is found to be as follows: Galveston, 11.8; Houston, 16.5; Dallas, 17; Fort Worth, 20; San Antonio, 24.6, and El Paso, 37, the high death rate in San Antonio and El Paso being accounted for by the fact that they are health resorts with many imported cases of tuberculosis and other diseases. San Antonio protests against this finding of the state board and says that their local records show no such death rate.

GENERAL NEWS

Tuberculosis in Cuba.—There have been 39,084 deaths from tuberculosis in Cuba during the last ten years and 10,000 in the city of Havana alone. President Gomez has submitted a message to congress urgently recommending an immediate campaign against the rapid spread of the disease.

New Director of Hygienic Laboratory.—Dr. M. J. Rosenau, formerly director of the Hygienic Laboratory of the U. S. Public Health and Marine-Hospital Service, having resigned June 30 to accept a position in the department of pathology of the Harvard Medical School, Dr. John F. Anderson has been permanently detailed as director.

Hospital at Cebu.—The government authorities in the Philippines have purchased from the Presbyterian Mission in Cebu a site for a hospital, which will supply the wants of over 1,000,000 people in that portion of the Philippines. The building will be an entirely new departure in hospital construction, being octagonal and built in such a manner that additions to any side can be made.

Physician Not a Prisoner.—Reports that Dr. Lawrence Burgheim, an American physician in Nicaragua, was being

forcibly detained by the Madriz forces, has been denied in a report to the State Department. Dr. Burgheim was physician to General Irias, the Madriz commissioner in Eastern Nicaragua, but recently quit the Madriz service and is reported to be in charge of one of Estrada's hospitals in Bluefields.

School for Army Surgeons.—A Field Service School has been established at the army post at Fort Leavenworth in connection with the Army Service School already there, to be in charge of an officer of the Medical Corps with a grade not lower than major, to prepare officers of the Medical Corps and medical officers of the organized militia for the better performance of their duties as administrative and staff officers on field service, and to make research into such subjects as concern medical officers under field conditions. The course will cover a period of six weeks, beginning about April 1 of each year.

Mosquito War in Italy.—In his report to the Department of Agriculture Dr. L. O. Howard, of the Bureau of Entomology, who has recently returned from the Italian Campagna, states that as a result of the war on mosquitoes in certain parts of Italy a healthy, cheerful-looking race and fat, rosy children have succeeded the miserable peasants, with yellow skins and bodies bent with disease and suffering. The Campagna, which was almost uninhabitable on account of mosquitoes and malaria, has now been drained by the government and is extensively farmed, and is beginning to support what will eventually be a large population. The government furnishes to the malarial population of the country "official quinin" at a cheap rate, and free to those unable to pay for it. The fight against malaria was inaugurated and pushed successfully by Dr. Angelo Celli, who is held in reverence by the common people of the country.

FOREIGN NEWS

New Hospitals.—Arrangements have been made to construct a new hospital at Vera Cruz, Mexico, to cost $100,000, to be called Melchor Ocampo, to take the place of the old San Sebastian Hospital which has fallen into decay.——The new hospital at Guadalajara is being furnished and will be opened shortly.

Cholera in Russia.—The report of the government sanitary commission, made public at St. Petersburg July 28, shows that cholera is prevalent in 42 provinces and territories in European Russia, and since the outbreak of the disease in May there has been a total of 37,652 cases with 16,651 deaths. Recently there has been a startling increase in the number of cases. During the week ended July 23 no less than 13,374 cases were reported and of these 5,979 terminated fatally. For two weeks prior to the report there was an average of 40 new cases daily in St. Petersburg.

Medals at Ophthalmic Congress.—During the last International Ophthalmologic Congress, held last year at Naples, eight gold and three silver medals were offered for the best articles in honor of the late Professor de Vicentiis. The decision of the international committee in charge of the awarding of the medals was published last week in the last part of the transactions of the congress. The gold medals were awarded to A. Birch-Hirschfeld, A. de Lieto Vollaro, A. del Monte, L. Guglianetti, T. Henderson, G. Samperi, R. Seefelder and H. Villard. The recipients of the silver medals were W. Clausen, R. Pardo and K. Wessely. The representative for the United States on the committee was Dr. E. E. Blaauw, Buffalo, N. Y.

CANADA

Naval Physicians Wanted.—The Dominion Civil Service Commission is advertising for surgeons for the Canadian navy. Three will be engaged at first, not over 30 years of age, who will receive $4 per day for three years, and then $5 per day up to five years. After their term of service they will be granted gratuities of $1,000 to $1,500 each.

Protective Association.—The ninth annual report of the Canadian Medical Protective Association has been issued. The membership has been steadily growing until it now reaches the 700 mark. During the past year only two legal cases have been before the courts for alleged malpractice against members. One was successfully defended, and the other, in Alberta, is still before the courts. The association now has a bank balance of nearly $7,000. The annual fee is $3.00.

Typhoid in Montreal.—Typhoid fever is again becoming alarming in Montreal. In 1909 in a population of 400,000 there were 1,892 cases with 212 deaths, considerably the largest in the past ten years. At the present time (July 27) there are over fifty cases in the hospitals and nearly all hospitals are refusing further admissions. Up to the date mentioned this year there have been over 700 cases with 150 deaths.

Society News.—Dr. James Ross, Halifax, N. S., has been elected president of the Nova Scotia Medical Society. Dr. J. R. Corston, Halifax, was reelected secretary.——The Maritime Medical Association met in St. John, N. B., July 21 and 22, and elected the following officers: President, Dr. E. A. Kirkpatrick, Halifax; vice-president for Nova Scotia, Dr. G. E. DeWitt, Wolfville; vice-president for New Brunswick, Dr. G. G. Melville, St. John; vice-president for Prince Edward Island, Dr. H. E. McEwen, O'Leary; secretary, Dr. D. C. T. Watson, Halifax; treasurer, Dr. G. G. Corbet, St. John.——The Saskatchewan Medical Society, which was to hold its annual meeting on July 6, will meet at a later date, to be decided on.——The Academy of Medicine, Toronto, has issued its third annual report. The number of volumes in the library is 5,375. The society now numbers 301 members. The annual resident fee is $10.

Hospital News.—Regina, Sask., is to have an isolation hospital at a cost of $16,000.——Edmonton, Alta., has voted $175,000 for hospital construction.——Victoria, B. C., will endeavor to raise $45,000 for a new isolation hospital.——The Daughters of the Empire of Vancouver, will build a hospital for convalescents and incurables as a memorial to King Edward VII.——Prince Albert, Sask., has taken over the Victoria Hospital of that place for a civic hospital.——A cottage hospital is being built for Estevan, Sask.——Fredericton, N. B., is contemplating enlarging the Victoria Hospital of that place.——The new wing for the Toronto Isolation Hospital is to be finished by June 1, 1911, at a cost of $102,000.——Charges of mismanagement of the Toronto Isolation Hospital having been made on different occasions recently, the authorities of Toronto will conduct an official enquiry early in September.——Construction of the out-patient building and the emergency department of the new Toronto General Hospital will be commenced early this fall, and it is expected these will be ready for patients by the spring of 1912.

Personal.—Dr. Labrecque, Prince Albert, Sask., has returned from Europe.——Dr. H. G. McKid, Calgary, is visiting eastern Canada.——Dr. Mertha, Beroda, India, is visiting in Vancouver.——Dr. Charles J. Doherty, superintendent of the Hospital for the Insane at New Westminister, B. C., has returned from visiting similar institutions in eastern Canada.——Dr. Mackenzie, Winnipeg, has been appointed medical superintendent of the Canadian Northern Railway between Fort William and Vancouver. He will reside in Victoria, B. C., in future.——Dr. J. T. White, Winnipeg, has returned from visiting the hospitals in Chicago and St. Louis.——Dr. A. H. Beaton, for thirty-four years superintendent of the Provincial Hospital for Feeble-Minded at Orillia, Ont., has resigned.——Dr. D. Fuller McKenzie, Hespeler, Ont., has given up practice to become a missionary to China.——Dr. T. G. Roddick, Montreal, has sailed for England.——Drs. A. J. Fraleigh and Don. McGillivray, Toronto, are spending the summer in British Columbia.——Dr. J. W. S. McCullough, Alliston, Ont., a member of the Ontario Board of Health for four years, has been appointed secretary.——Professor J. George Adami, Montreal, will represent the Canadian Association for the Prevention of Tuberculosis at the meeting in Rome.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, July 23, 1910.

Prevention of Street Hawking by Children

The present government has distinguished itself above all governments by its humanitarian legislation, as has been shown in previous letters to THE JOURNAL, and especially by legislation for the protection of children. Drastic recommendations have now been made by a committee of the house of commons appointed to enquire into the employment of children, which is regulated by an act of 1903. Among the principal recommendations is that street trading by boys should be prohibited up to the age of 17 years and by girls up to the age of 18. After hearing many witnesses the committee came to the conselusion that the youthful street trader is exposed to many of the worst moral risks; he associates with, and acquires the habits of, the frequenters of the curbstone and the gutter. If a matchseller, he is likely to become a beggar; if a newspaper seller, a gambler. Street trading tends to produce a dislike for more regular employment. The child finds that for a few years money is easily earned without discipline or special skill; the occupation sharpens the wits without developing the intelligence. It leads to nothing per-

manent and is of no help to a future career. In the case of girls there is the further danger that such a life often leads to immorality. Evidence was also given that street hawking is attended with physical evils. The money easily earned is badly spent.

The Deadly Motor Car

In the year 1909 there were 1,151 fatal accidents caused by vehicles in the streets of the United Kingdom. Of these, motor cars were responsible for 311, motor omnibuses for 75, motor tramcars for 122, horse tramcars for 5, horse omnibuses for 16 and other horse-drawn vehicles for 622. Thus motor vehicles were responsible for 44 per cent. of the total fatal accidents. There were 26,872 non-fatal accidents, of which 7,149 (26 per cent.) were due to motor cars, 1,346 to motor omnibuses, 4,642 to motor tramcars, 111 to horse tramcars, 383 to horse omnibuses and 13,241 to other horse vehicles. In London 287 fatal and 11,731 non-fatal accidents occurred. Of the former 84 (29 per cent.) were caused by motor cars, 9 by horse-drawn omnibuses, 113 by other horse vehicles, 3 by horse tramcars, 26 by motor tramcars and 52 by motor omnibuses.

Fifty-two Hours Between the Birth of Twins

A South African practitioner, Dr. C. J. Hill-Aitken, has reported in the *Transvaal Medical Journal* a remarkable case in which a delay of fifty-two hours took place between the birth of twins. A native woman was delivered at noon. After the birth the pains ceased and did not return. Her friends waited patiently until the following afternoon and then sought European medical advice. The doctor was summoned and was told that while active interference was, if possible, to be avoided, his advice would be welcomed. He saw the patient about 7:30 p. m. and found that, while no labor pains were complained of, the uterus could be felt to contract at intervals and contained another child, which displayed active movements. There was no hemorrhage from the uterus or from the cord of the first child. The bag of membrane was unbroken and the head of the child was lying at the pelvic brim, which was wide and unobstructed. The doctor did not like to apply high forceps or to perform version in a native hut with a scanty hot-water supply and no table on which to place the patient. He also preferred not to take the risk of rupturing the membranes, though this might have hastened matters. On the following morning labor set in at 4.30 and the second child was born at 4 p. m. There was thus an interval of fifty-two hours between the births of the first and second child. Both the mother and the children did well.

Instruction to Girls in the Care of Infants

A medical member of parliament, Dr. Addison, lecturer on anatomy at St. Bartholomew's Hospital, has introduced a very useful bill requiring instruction in hygiene to be given in the public elementary schools and in the case of girls in the care and feeding of infants. He pointed out that 120,000 children die in this country under the age of 1 year, a proportion of 1 in 4. A large part of this waste is due to improper feeding and want of proper care on the part of those who nurse children. As stated in a previous letter to the THE JOURNAL, the Notification of Births act, with its attendant "health visitors," has brought about improvement in infant mortality, but more is possible. The instruction of the girls is to be quite simple and not to take up much of the school time.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, July 20, 1910.

The Causes of Sleep

In the Hamburg Medical Society, the neurologist, Dr. Trömner, delivered a short time ago an interesting address on the origin of sleep, distinguishing between the favoring, exciting and essential causes of sleep. The favoring circumstances are absence of sensory stimuli and lack of excitement; the exciting factors which set in action the function of sleep include fatigue, habit (the accustomed time and place for sleep), narcotics in part, and the idea of sleep, on which rests the suggestibility of this function. As to the actual cause of sleep, Trömner regards all theories incriminating fatigue as finally exploded because, (1) infants, although they have no occasion for fatigue, sleep nearly all the time, which Trömner attributes to a connection between sleep and growth; (2) because in later life sleep occurs habitually in the absence of any fatiguing activity, and (3) because excessive fatigue often causes insomnia in weak and irritable persons. Sleep is rather an active process of inhibition, acting in the first place on the sensory functions, as the measurements of the depth of sleep by Michelsohn and Czerny show, and in the second place acting on the motor and secretory functions. The question of the vasomotor changes of the brain in sleep has been settled by Czerny and Brodmann in favor of a moderate hyperemia, which is, however, to be regarded only as a secondary process. The biologic form of sleep is that of an instinct which, like other instincts in the human race, exhibits itself usually according to habit and is regulated by mental conceptions. Trömner assumes on various grounds that the thalamus opticus is the organ of this instinctive action.

The Effect of the Alcohol Boycott

The alcohol boycott instituted by the social democrats last year has had unexpectedly remarkable results according to the social democratic press. Since the boycott was enforced, the use of alcohol has markedly diminished. In the year ending May, 1909, 195,944 hectoliters (about 5,000,000 gallons) were consumed, while in 1910 only 157,976 hectoliters (about 4,000,000 gallons), or 19.4 per cent. less were used than in the previous year. Whether this favorable effect will continue will be awaited with interest.

Personal

As successor of Professor Verworn, Professor Jensen of Breslau has been called to Göttingen as professor of physiology.——Professor Filehne, the Breslau pharmacologist, has been elected as a foreign member of the Paris Academy of Medicine.——Professor Payr of Greifswald, as predicted in a previous letter, has declined the call to Tübingen as successor of Professor Bruns.——Professor Kretz of Prague has accepted the call to Würzburg as successor of Professor Borst.

Debate on Social Insurance Bill

The new imperial insurance bill is before the Reichstag and has been as usual referred to a committee selected for the purpose of examining it. This committee is composed of representatives of all the parties and its report will give expression essentially to the views of all parties. In order to make the process of legislation as thorough as possible and to guard against errors, every bill passes through two discussions in committee. After these two readings, the bill is brought before the full house and is here subjected to a threefold reading before it is finally disposed of. In all these phases of the discussion, marked changes in the individual paragraphs may be made and therefore it is never safe to prophesy, especially in the case of important laws, whether the law will pass the Reichstag or what its final form will be. It is on this fact that the physicians at present base their hopes; for if the law is passed in the form in which it has been placed before the committee, none of the demands will be accepted which medical men have formulated in the journals and in the society meetings. The view of the medical profession is expressed in the following very clear statement which the Krankenkassen committee of the German medical association (*Aerztevereinsbund*) has published:

"The report of the transactions of the sixteenth Reichstag committee regarding the paragraphs of the second bill of an imperial insurance law which refer to physicians shows a complete misunderstanding of the most elementary facts respecting medical questions, on the part of the government and of the representatives of most of the parties, and an unconcealed hostility to the medical profession which cannot but arouse the indignation of German physicians in general. The conclusions of the committee signify a marked impairment of the bill which was already impracticable; its enactment into law would necessitate the inflexible opposition of the organized medical profession. In view of the opinions expressed by the secretary of state in the imperial department of the interior and by the representatives of all the parties that the clauses regulating the relations of the Krankenkassen to the physicians are untenable and must undergo a complete revision on the second reading, it is to be expected that the demands of medical men will be finally accepted in their full extent. However, after what has happened, the medical profession can look forward to the next report only with the most serious misgivings."

I fear that neither the Reichstag nor the government will be much influenced by the indignation expressed in this state-

ment, which is rather exaggerated, and that the mistrust expressed in the last sentence will be found only too well justified. However, it is a long way yet to the final decision. The committee interrupted its deliberations a few days ago and went on a summer vacation. It will not resume its labors again until the middle of September and finish them in November. In the course of the winter, the law should be discussed before the full house. There is still time for physicians to continue their efforts to influence the members of the Reichstag and the government in their favor.

Abstinence from Alcohol Among the Berlin Municipal Employees

The mayor has reminded the city officials that the use of alcoholic drinks during office hours will only be permitted in case of exceptional physical constitution of the individual and in these exceptional cases must be restricted as much as possible. At the same time the officials in general are informed that the regular use of beer and other alcoholic drinks in any considerable amounts during labor is injurious to health, especially to the nerves, and therefore should be given up in the interest of the officials themselves.

Marriages

A. BAYNE GRUBB, M.D., to Miss Hal Porter, both of Cripple Creek, Va., July 13.

RUDOLPH G. ANDRES, M.D., Cheney, Wash., to Miss Nellie M. Fisher, of Spokane, July 20.

GEORGE CHAMBERS WOODSON, M.D., to Miss Lillian A. Burger, both of Richmond, Va., July 19.

LESLIE GEORGE TAYLOR, M.D., Perryville, Md., to Miss Jessie Rebecca Arthur, at Baltimore, July 20.

ALFRED JOSEPH TOULON, M.D., U. S. Navy, to Miss Mabel Estelle Goodier, of Manila, P. I., June 11.

REUBEN H. HUNT, M.D., San Francisco, to Miss Elaine Aimee Berthe Matignon, of Berkeley, Cal., July 21.

OTTO DARWIN DIEHL, M.D., Centralia, Ill., to Miss Marjorie Nies, of Virginia, Minn., at Chicago, July 16.

CHARLES BRIGHAM CHEDEL, M.D., Portland, Conn., to Miss Emma L. Foster, of Hanover, N. H., July 1.

LOUIS GRAYSON HARNEY, M.D., East St. Louis, Ill., to Miss Lela Elinor Workman, of St. Louis, June 14.

FRANK N. COCHEMS, M.D., Salida, Colo., to Miss Myra Halstead Nugent, of South Haven, Mich., July 15.

Deaths

George M. D. Cantrell, M.D. Medical Department of the University of Nashville, Tenn., 1875; Vanderbilt University, Medical Department, Nashville, 1876; a member of the American Medical Association; professor of theory and practice of medicine in the College of Physicians and Surgeons, Little Rock; physician to the Arkansas State Penitentiary from 1887 to 1891; at one time president of the Arkansas State Board of Health; died in Denver, July 21, from tuberculosis, aged 58.

David W. Henderson, M.D. Starling Medical College, Columbus, Ohio, 1852; a member of the Ohio State Medical Association; a veteran of the Mexican War and a surgeon in the Ninety-sixth Ohio Volunteer Infantry throughout the Civil War; a resident of Marysville, Ohio, for seventy-three years, a practitioner of medicine there for sixty, and thought to have been the oldest practicing physician in the state; died at his home in Marysville, July 23, from paralysis, aged 87.

William James McAdams, M.D. Western Pennsylvania Medical College, Pittsburg, 1900; a member of the American Medical Association; a member of the staffs of the Southside Hospital, the Rosalia Foundling Asylum, and the Pittsburg Free Dispensary; professor of bacteriology and microscopy at the Pittsburg College of Pharmacy; died at his home in Pittsburg, July 23, aged 39.

Henry Louis Hammond, M.D. Harvard Medical School, 1866; a member of the American Medical Association; acting assistant surgeon in the Civil War; secretary of the United States Pension Examiners in Norwich, Conn., from 1888 to 1890; formerly of Killingly, Conn.; died on a railroad train in Texas, while en route from California to his home in Niles, Mich., July 17, from paralysis, aged 67.

William Edwin Wilson, M.D. University of Virginia, Department of Medicine, Charlottesville, 1873; Bellevue Hospital Medical College, New York City, 1874; a member of the Tennessee State Medical Association; of Pulaski, Tenn.; was drowned, July 17, while attempting to cross a swollen stream in returning from a professional call, aged 60.

Reuben C. Griffitt, M.D. University of Louisville (Ky.) Medical Department, 1870; Bellevue Hospital Medical College, New York City, 1876; a veteran of the Civil War; died at his home in Morgantown, Ind., July 22, from injuries received in a fall from the second story window of his house on the night of July 4, aged 75.

Frederick Chauncey Graves, M.D. New York University Medical College, New York City, 1888; a member of the American Medical Association; a well-known practitioner of Bridgeport, Conn.; died at the Galen Hospital, July 26, from the effects of poison, taken, it is believed, with suicidal intent, aged 47.

William L. C. Forrester, M.D. New York University Medical College, New York City, 1881; a member of the Board of Directors of the Medico-Chirurgical Hospital and visiting physician to the Masonic Home; died at his office in Philadelphia, July 19, from cerebral hemorrhage, aged 49.

Daison D. Drake, M.D. Albany (N. Y.) Medical College, 1864; for a number of years a member of the Board of Pension Examining Surgeons; for several years a member of the Johnstown, N. Y., Board of Education; died at his home in that city, July 20, from paralysis, aged 72.

Horace S. Lamson, M.D. Harvard Medical School, 1863; surgeon in the Third Rhode Island Heavy Artillery during the Civil War; died at his home in Providence, R. I., July 17, from nervous shock resulting from an automobile accident several weeks before, aged 72.

Horace F. Hanson, M.D. Berkshire Medical College, Pittsfield, Mass., 1866; a member of the American Medical Association; a Grand Army veteran; United States pension examining surgeon; died at his home in Bangor, Maine, July 17, from paralysis, aged 72.

Wellington John Smith (license, Pa., 1881); a member of the National Association of Railway Surgeons; Pennsylvania Railroad surgeon at Lykens for twenty-one years; died at his home in that place, July 13, from sarcoma of the neck, aged 73.

Leslie Dodd Ward, M.D. College of Physicians and Surgeons, New York City, 1868; of Newark, N. J.; vice-president of the Prudential Life Insurance Company; died in London, July 13, from nephritis complicated with pneumonia, aged 65.

Louis Richard Brown, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1864; a member of the Board of Health of Elizabeth, N. J., for several terms; died at his home in that city, July 18, from nephritis, aged 70.

Homer C. Shaw, M.D. Starling Medical College, Columbus, Ohio, 1852; army surgeon during the Civil War, belonging to the Tenth Ohio Volunteer Infantry; died at his home in Homer, Ill., July 23, from paralysis, aged 82.

Kenneth A. Blue, M.D. University of Maryland, School of Medicine, Baltimore, 1889; a member of the Medical Society of the State of North Carolina; died at his home in Laurinburg, N. C., July 16, from nephritis, aged 43.

John I. Bailey (license, Iowa, 1886); a veteran of the Civil War; for twelve years a member of the Pension Examining Board of Cedar County; died at his home in West Branch, July 12, from hemiplegia, aged 64.

Mark S. Leavy, M.D. University of Wooster Medical Department, Cleveland, Ohio, 1888; a member of the Medical Society of the State of New York; died at his home in Albany, July 19, from heart disease.

Henry Hastings Seargeant, M.D. Jefferson Medical College, 1861; a surgeon in the First Virginia Regiment during the Civil War; died at Gordonsville, Va., June 7, from paralysis, aged 69.

James Robert Roe, M.D. Eclectic Medical Institute, Cincinnati, 1854; of Canon City, Colo.; was found dead at his ranch near Guffey, Colo., April 28, from heart disease, aged 78.

Charles E. Bainbridge, M.D. California Eclectic Medical College, Los Angeles, 1886; for a number of years a prac-

ticing physician of Sacramento, Cal.; died at that place July 9, from myocarditis.

William C. Bruns, M.D., University of California, Medical Department, San Francisco, 1878; of Portland, Ore.; died at the Good Samaritan Hospital in that city, July 16, from heart disease, aged 52.

Edwin Amsden, M.D. University of Buffalo (N. Y.) Medical Department, 1853; a veteran of the Civil War; formerly of Allegan, Mich.; died at San Diego, Cal., July 13, from senile debility, aged 84.

James O. Wilkerson, M.D. Missouri Medical College, St. Louis, 1882; a member of the Missouri State Medical Association; died at Cowgill, Mo., June 20, from cerebral hemorrhage, aged 58.

Jefferson Floyd Fuller, M.D. New Orleans School of Medicine, 1862; a surgeon in the Confederate Army during the Civil War; died at Jacksonville, Fla., June 18, from nephritis, aged 80.

Lester M. Currier, M.D. Hahnemann Medical College, Chicago, 1873; a member of the Illinois State Medical Society; died at his office in Freeport, Ill., July 6, from gall-stones, aged 63.

William Lorelle Duffin, M.D. Rush Medical College, 1873; a member of the American Medical Association; died at his home in Guttenberg, Iowa, July 24, from heart disease, aged 60.

Edwin S. Cave, M.D. Missouri Medical College, St. Louis, 1884; a member of the American Medical Association; died at his home in Mexico, Mo., July 10, from nephritis, aged 54.

Lawrence Edward Manley, M.D. New York University Medical College, New York City, 1883; died at Canton, Pa., April 10, from pulmonary tuberculosis, aged 54.

William Leaming Matthews, M.D. University of Pennsylvania, Department of Medicine, 1871; died at his home in Philadelphia, July 10, from paralysis, aged 61.

Joseph W. Crowley, M.D. University of Pennsylvania Department of Medicine, 1895; died at his home in Philadelphia, July 22, from pneumonia, aged 43.

Morey L. Reed, M.D. Rush Medical College, Chicago, 1892; of Lemmon, S. D.; died in Samaritan Hospital, Aberdeen, July 22, from Bright's disease, aged 51.

George Ferguson, M.D. University of Michigan, Department of Medicine and Surgery, 1854; a pioneer of Coldwater, Mich.; died at that city, July 23, aged 83.

James H. Kelly (license, Pa., 1894); of Monessen, Pa.; died at Hotchkiss, Colo., July 8, following an operation for the removal of gall-stones, aged 76.

John White Martin, M.D. University of Pennsylvania, Philadelphia, 1853; died at his home in Canonsburg, Pa., July 11, from paralysis, aged 82.

Jonathan Tullis Hall, M.D. Indiana Medical College, Indianapolis, 1876; died at his home in Sidell, Ill., July 10, from meningitis, aged 58.

Franklin R. Madison, M.D. Missouri Medical College, St. Louis, 1858; died at the home of his daughter in Portland, Ore., July 17, aged 76.

Pharmacology

LUNG GERMINE *

A Consumption Cure With a "Guarantee" as a Bait

Lung Germine, which is advertised as having cured "severe and advanced cases of consumption," is put on the market by the Lung Germine Company of Jackson, Mich.—a town, by the way, that for its population has more than its share of quacks and charlatans who advertise on a national scale. The "medical director" of this concern is one C. R. Wendt, M.D., who claims to be a graduate of Leipsic University of Germany. The necessary air of mystery is given to Lung Germine by advertising it as having been discovered by "an old German Doctor Scientist." The method of reaching the public is the usual one—*via* those newspapers or magazines whose advertising conscience is atrophied or unborn (see Fig. 1).

HOW VICTIMS ARE CAUGHT

The victim who answers one of these advertisements receives a form letter gotten up to represent a personal communication; he also gets a "free trial treatment" of the "cure." It is carefully explained that the regular size treatment costs $5.00 and will be sent on receipt of price. Ten days later if the prospective victim still fails to bite, he gets another form letter in which he is again urged to send for the "cure." Should even this fail to cause him to send in an order, a third form letter follows in two weeks' time in which the reduced price of $3.00 is made. Eleven days later, if the money is still not enticed out of the victim's pocket, comes form letter No. 4 in which he is urged to deposit $5.00 with his local banker to be held in trust for one month and to be returned at the end of that time if he has not noted

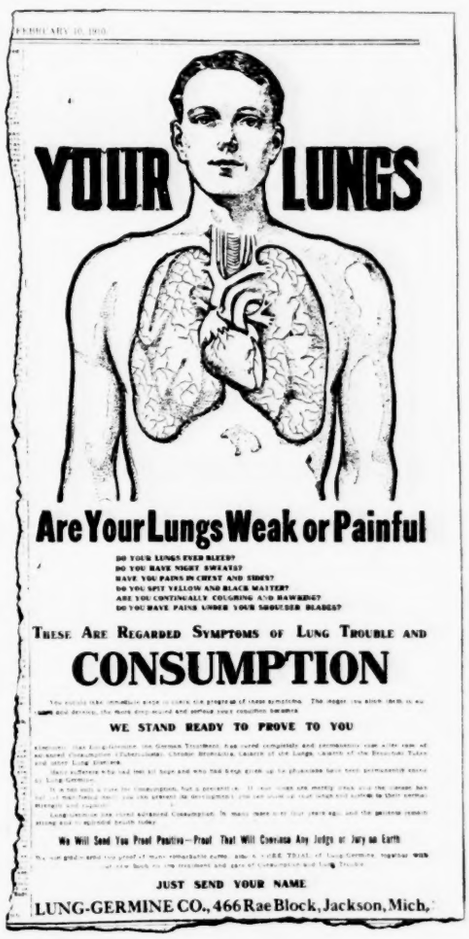
YOUR LUNGS
Are Your Lungs Weak or Painful
DO YOUR LUNGS EVER BLEED?
DO YOU HAVE NIGHT SWEATS?
HAVE YOU PAINS IN CHEST AND SIDES?
DO YOU SPIT YELLOW AND BLACK MATTER?
ARE YOU CONTINUALLY COUGHING AND HAWKING?
DO YOU HAVE PAINS UNDER YOUR SHOULDER BLADES?
THESE ARE REGARDED SYMPTOMS OF LUNG TROUBLE AND
CONSUMPTION
WE STAND READY TO PROVE TO YOU
We Will Send You Proof Positive—Proof That Will Convince Any Judge or Jury on Earth
JUST SEND YOUR NAME
LUNG-GERMINE CO., 466 Rae Block, Jackson, Mich.

Fig. 1.—Photographic reproduction—much reduced—of one of a series of Lung Germine advertisements which have appeared within the past few months. This advertisement, which in the original measured 9 by 15 inches, is from the *Nashville American*.

"benefit or favorable changes" in that time. In three more weeks the last attempt to get the patient's money is made by means of form letter No. 5. In this the company states that it is "going to do something which is absolutely against our business principles, in one more effort to introduce Lung Germine in your locality." The "something" is an offer to accept a mere $2.00 for "one full month's treatment of Lung Germine, the regular price of which would otherwise be $5.00." If this doesn't bring the money the Lung Germine Company charges the form letters, postage and "free trial treatment" up to profit and loss and closes the account.

* This article, like similar ones that have appeared in THE JOURNAL, is reprinted in pamphlet form (4 cents in stamps) so that physicians may put in the hands of their patients information that is unobtainable elsewhere.

THE WORTHLESS GUARANTEE

With the first letter and trial treatment a "positive guarantee" blank is sent, of which the company makes much (see Fig. 2). Briefly, it guarantees that the company will return the money paid "for the first month's treatment" provided that "no benefit or favorable changes are made in the patient's condition *during that time*." [Italics ours.—ED.] The following rules, however, must be complied with:

"The patient must use all of this first month's treatment in order to make use of this guarantee.

"The patient must carefully follow directions and the instructions of the Medical Director of the Company, and report the exact condition and changes the treatment has made, not less than four times during the first thirty days' treatment."

From what every physician knows of consumptives it is easy to see that the Lung Germine Company runs about one chance in ten thousand of having to return the five dollars paid for the first month's "treatment." If the nostrum consisted of dish-water colored pink the "guarantee" described above would be an equally safe commercial proposition—for the dispenser of the dish-water.

OFFICE OF THE
LUNG-GERMINE COMPANY
JACKSON, MICH.
POSITIVE GUARANTEE

Fig. 2.—A photographic reproduction of the "guarantee" which, while legally is probably valid, is actually worthless and but an added bait for the unwary and easily gulled consumptive. The same guarantee would be an equally safe commercial proposition to the exploiter of mere hydrant water, if such water were sold under the same specious promises that this nostrum is.

If the guarantee promised to return all money paid in to the concern for a "treatment" providing there was "no benefit or favorable changes" at the *end* of the "course" instead of *during* it, the Lung Germine Company would be bankrupt in six months—if it honestly carried out the terms of its guaranty. The "guarantee" may legally be all that these nostrum exploiters claim for it; morally and practically it isn't worth the paper it is printed on.

TESTIMONIALS FROM BEGINNERS

As an accessory to its form letters and booklets, etc., the Lung Germine Company sends out each month what it calls the *Lung Germine Monthly Bulletin*. This consists of testimonials from victims who have just started the "treatment" and who naturally enough write favorably of it. The company states that:

"The *Bulletin* does not publish letters or reports from cured patients."

The reason is obvious, though commercially speaking making a virtue of a very evident necessity is clever even though conscienceless. Should the Lung Germine Company attempt to keep track of their victims and publish a "monthly bulletin" detailing the condition of the unfortunates two or three years after taking the "treatment," such a publication would be composed largely of obituary notices. Not entirely, of course, because there is always a goodly number of neurotic individuals who are convinced that they have some one or more fatal diseases—of their own diagnosing—and who after taking a course of self-prescribed "treatment" are with equal facility able to declare themselves "cured." It is from this class of hypochondriacs that the most dangerous of "testimonials" come—whether they be for a "patent medicine" or for Christian Science.

WHAT THE TESTIMONIALS ARE WORTH

This is indicated by the replies received from physicians in regard to some of the "cases" reported in the Lung Germine *Bulletin*. THE JOURNAL sent letters of inquiry to physicians regarding the condition of "patients" whose names appeared in some of the older *Bulletins*. In each case the poor victim had written telling of the wonderful improvement that Lung Germine had wrought; here are facts as given by the local physicians:

Regarding C. V. N. of W. Va.: "The enclosed clipping from a local paper, I think, will answer your questions." [The clipping referred to, was the obituary notice of C. V. N.—ED.]

Regarding A. M. of La.: "Replying to yours of the 23rd inst. relative to A. M., will say this party died about 2 years ago."

Regarding A. W. M. of Ark.: "There is no such individual here."

Regarding Mrs. E. E. of Ala.: "I am confident Mrs. E. had no tuberculosis."

Regarding Mrs. L. M. of Ala.: "Mrs. L. M. has always been afraid she would develop tuberculosis but she has never had it."

Regarding T. B. of Okla.: "He did not have tuberculosis."

Regarding Mrs. M. G. of La.: "Positively she has never had any trace of tuberculous trouble."

Regarding A. M. T. of La.: "Did not have tuberculosis."

Regarding Mrs. L. C. of Tenn.: "Never heard of such a person."

WHAT IT DID IN ONE CASE

A physician in Texas who wrote for information about this fake stated that he had a patient who has persisted in taking Lung Germine. The condition of the patient before and after a two month's "course" of "treatment" with this nostrum is thus described by the physician:

"The tuberculous patch in the upper lobe of the left lung was about the size of, or possibly a little larger, than a silver dollar when I examined her about two weeks before she began the wonderful 'cure,' and the case had been stationary about six months. Two weeks after the cessation of the two month's treatment with Lung Germine I found the disease had advanced about 50 per cent. The whole of the upper lobe of the left lung was involved and the process had extended to the lower portion of the upper lobe and the upper portion of the middle lobe of the right lung.

"It will be but a short time before this poor woman is dead."

That the stuff not only has no value but is absolutely harmful, as the above report indicates, is not surprising in the light of the analysis made by the Association laboratory which follows:

REPORT OF THE LABORATORY

A bottle of Lung Germine, which had been purchased directly from the Lung Germine Company was submitted to the Association laboratory for examination. The bottle holding 2 ounces of a light brown liquid is labeled as follows:

LUNG GERMINE

GERMAN TREATMENT FOR

CONSUMPTION

And Diseases of The Lungs and Bronchial Tubes

CONTAINS 14% ALCOHOL

Guaranteed by the Lung Germine Co. to conform with the U. S. Pure Food and Drugs Act of June 30, 1906. Serial No. 13455.

Lung Germine is a light brown, transparent liquid possessing an alcoholic odor, resembling sherry wine, and a sharp acid taste. Qualitative examination of the preparation indicated the presence of alcohol, sulphuric acid and a trace of ash, containing iron, phosphates, sodium and potassium. Further tests indicated the absence of alkaloids, iodids, bromids, chlorids, nitrates, phosphates and

metals, other than those present in minute traces in the ash. From the results of the quantitative examination[1] it is concluded that Lung Germine is essentially a mixture of sulphuric acid, wine, fortified by alcohol, and water, in approximately the following quantities:

Alcohol (absolute)	44 per cent.
Sulphuric acid (H_2SO_4)	4 per cent.
Water	52 per cent.

MISBRANDED UNDER THE LAW

From this it appears that at least some specimens of this nostrum are misbranded under the Food and Drugs Act in that it contains over 40 per cent. of alcohol while admitting on the label the presence of only 14 per cent. The directions state that 5 drops should be taken in water three times a day and this is increased up to 15 or 17 drops within a week or so. As a five-dollar bottle of the stuff only holds two ounces it is evident that the so-called "month's treatment" really amounts only to a little more than two week's treatment.

The viciousness of the traffic in health and even life in which the exploiters of "consumption cures" are engaged, has time and again been referred to in these pages. Yet to the physician the facts are as old as his practice. He knows the tragedy of hope deferred and precious time wasted in the cases of the poor dupes who fall into the clutches of these ghouls. He knows, as none other than the victim himself knows, how difficult it is to get the consumptive to live the only life that holds out hope for him. It is almost impossible to convince the layman suffering from tuberculosis that there is no specific drug remedy for his ailment. Add to this inbred belief the specious claims and honeyed lies of the quack and the temptation to squander money on the worse than worthless nostrums becomes well-nigh irresistible.

The consumptive must be protected against himself and against those moral outcasts who would batten on the despair and weakness of the mortally ill. There is but one way to do this effectively and that is for physicians to enlighten the public on the possibilities and the limitations of modern therapeutics. When this has been thoroughly done the mail-order medicine concern will cease to exist, because then every intelligent lay jury would take the attitude that they were fraudulent—an attitude which at present, unfortunately, is by no means universal.

THE INTERNATIONAL ENCYCLOPEDIA OF ETHICAL NON-OFFICIAL PHARMACEUTICALS

The commercial possibilities of a book like New and Non-official Remedies published by the Council on Pharmacy and Chemistry have evidently never been realized. As physicians know, products cannot get into N. N. R. unless they possess value and are advertised honestly; when they conform to the rules of the Council, however, it costs nothing for them to appear in that useful publication. Therein apparently N. N. R. differs from another compilation that may be expected to appear some time in the future—known by the sonorous and high-sounding title, "International Encyclopedia of Ethical Non-official Pharmaceuticals." This stupendous work is to be published by a New York concern known as the Medical Research Corporation and has for its editor Virgil Coblentz, A.M., Phar. M., Ph.D., and for its associate editors George C. Diekman, Ph.G., M.D., and Albert A. Ripperger, M.D. The president of the "corporation" is Henry E. Fanshaw, who, we understand, was formerly with the exploiters of "Fluid Hygenique"—the Hef Chemical Company, of New York City.

The method of "compiling" the list of "ethical non-official pharmaceuticals" which is to make up the "international encyclopedia" seems to be about as follows: A letter is sent to a pharmaceutical house asking the concern to send descriptive matter regarding such of its products as are of special interest to physicians. Should this be sent, its receipt is acknowledged and an interview is requested. The interview makes clear the vast possibilities that still lie in the proprietary medicine business—for a virile advertising concern. To make it more plain: The following contract is submitted to the pharmaceutical manufacturer who may have deluded himself into believing that he was doing a favor in telling the "International Encyclopedia" people all about his "ethical non-official pharmaceuticals:"

PROPRIETARIES

The Parties in this agreement incur no obligation other than those within mentioned.

$..... New York, ..., 191..

MEDICAL RESEARCH CORPORATION, Publishers, 2 Rector Street, New York City.

In consideration of the services rendered by you to members of the medical and pharmaceutical professions, in the publication of the International Encyclopedia of Ethical Non-Official Pharmaceuticals, wherein proper representation of our product..... ..... is made to the extent of one-half page, and in consideration of your printing and delivering, at your expense, copies of the said "Encyclopedia" to the individual members of the medical profession in the United States and Canada (approximating 135,000), we hereby agree and bind ourselves to contribute the sum of Five Hundred ($500) Dollars, which shall be paid to you in the following instalments: One Hundred and Fifty ($150) Dollars at the signing hereof; One Hundred ($100) Dollars upon our being provided with a copy of the matter devoted to our product ....., and the remaining Two Hundred and Fifty ($250) Dollars at the time that the said International Encyclopedia of Ethical Non-Official Pharmaceuticals shall have been distributed to the practicing members of the medical profession as hereinbefore mentioned, through the United States mail or otherwise.

Name .....

Signed by.....

Address .....

Accepted subject to approval of Board of Editors, MEDICAL RESEARCH CORPORATION,

By.....

This contract, it will be noticed, pertains to "proprietaries;" there is a different one for "synthetics." That is to say, the figures on the latter are different: the words are practically the same. Whereas the manufacturer must pay $500 for a half-page notice of his "proprietary," he need only pay $200 for the same amount of space devoted to his "synthetics." What subtle scientific distinction is drawn between "synthetics" and "proprietaries" is not clear; of course, the other distinction is quite evident—$300.

It is probable that the makers of proprietaries that are debarred from "New and Non-official Remedies" will welcome the opportunity to "put one over" on the Council on Pharmacy and Chemistry by having their preparations appear in all the glory of a half-page reading notice in the "International Encyclopedia of Ethical Non-official Pharmaceuticals."

As the "encyclopedia" is to be "international" in scope, we may expect to find our German friends, who are long on "synthetics," well represented in the $200 section of this extensive compilation. The book will doubtless fill a long felt want—of many manufacturers—and apparently the medical profession is to get it for nothing.

1. Qualitative examination having indicated the presence of alcohol, hydrogen ions, sulphate ions and traces of iron, phosphates, sodium and potassium, the following quantitative estimations were made:

Alcohol: Alcohol was estimated according to the method of the Bureau of Chemistry, Department of Agriculture, Bulletin No. 107 (Revised), 1908, p. 83. The results of the estimations indicated the presence of 44.10 per cent. alcohol.

Sulphuric acid: The acidity of the preparation was determined by direct titration with tenth-normal potassium hydroxid solution using methyl orange as an indicator. The following results were obtained: (a) 10 c.c. of a 1 to 10 dilution of Lung Germine with water required 7.91 c.c. tenth-normal potassium hydroxid and (b) required 7.99 c.c. of the alkali; an average of 7.95 c.c. This is equivalent to 0.0385 gm. sulphuric acid (H_2SO_4). As a check the sulphate (SO_4) content was estimated in the finished titrations by precipitation with barium chlorid and weighing as barium sulphate. The following results were obtained: (a) yielded 0.0902 gm. barium sulphate and (b) yielded 0.0905 gm. barium sulphate; average 0.09035 gm. equivalent to 0.0380 gm. sulphuric acid (H_2SO_4). This agrees sufficiently with the result obtained by titration, *i. e.*, 0.0385 gm., to demonstrate that the latter is correct. The sulphuric acid found by the above method is equivalent to 3.98 per cent. by weight.

Ash: The ash was determined in the usual way by evaporation of the preparation and ignition of the residue. 10 c.c. of Lung Germine yielded (a) 0.0039 and (b) 0.0041 gm. ash, an average of 0.0040 gm. or 0.041 per cent.

Correspondence

Registration of Foreign Physicians

To the Editor: There was a time when foreign medical schools, especially those of Germany and England, were considered superior to ours. At the same time there were non-graduate practitioners in all of our states, with no registration laws, and many localities were not supplied with competent physicians. At that time it was expedient to invite foreign graduates to locate here. To-day conditions have changed. Our colleges rank with the best schools in the world; foreigners come to our shores to learn our advanced methods, but our graduates are not recognized in those countries. Our states are now well-supplied with graduate and registered physicians; many of our cities are overcrowded, and yet foreigners, who cannot make a living in their own country, throng in. The profession in Germany is overcrowded. Canadian physicians are pouring into our country and American graduates are crowded out, and have no recourse of protection in their own country. The laborer, as well as the American artisan and manufacturer, is protected by our protective tariff; the price of commodities and cost of living are thereby raised, but the American physician has no protection; his charges are not higher than they were years ago, and he must compete with imported men.

We hope for reciprocal relations with other countries that will give the American physician a chance to enter those countries. Why should these countries accept such relations so long as our country is open to their graduates without reciprocity on their part? It is a poor rule that does not work both ways. Shut out the foreigner as we are shut out from other countries, and reciprocal relations will soon be established.

A. J. HOENES, Denison, Iowa.

Pharmacologic Fetishisms—A Demand Made on the Iconoclast

To the Editor: It would be hard to express one's sensation after reading Dr. Barton's articles on this subject (May 15, 1909, p. 1557, and July 23, 1910, p. 284). I venture the assertion that every drug or combination of drugs mentioned in the two papers has been and is being used daily by physicians, with real or fancied results.

As there should be no tearing down without building up, it would be interesting to know what Dr. Barton considers effective treatment in the conditions mentioned. Our patients are not greatly impressed with hot-water compresses in sprains. When they employ us they usually look for a more elaborate treatment than they are capable of administering to themselves. If the time-honored lead and opium lotion (and I presume all applications of the same character) has no virtue, pray what are we to use? I think Dr. Barton owes the profession a debt, in that in taking away our confidence in these preparations heretofore considered valuable, he does not at the same time suggest effective substitutes.

C. N. BRANIN, M.D., Baltimore.

Error in Brooks' Article on the Action of Alcohol

To the Editor: Through an error which I failed to notice on the proof you sent me, one paragraph is out of place in my article on "The Action of Alcohol on the Normal Intact Unanesthetized Animal" in THE JOURNAL, July 30. On page 374, in the second column, the paragraph commencing "On several successive days" refers to the first method by a T-cannula and not to the third method, which is described immediately preceding this paragraph.

CLYDE BROOKS, Chicago.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LICENSE AND PRACTICE IN GUATEMALA

To the Editor:—What are the requirements for registration by an American physician in Guatemala, Central America?

D. C. R., Fort Worth, Texas.

ANSWER.—A foreign physician cannot practice in Guatemala without first passing a general medical examination in the Spanish language, before the Faculty of Medicine of Guatemala City.

SCARLET RED IN OIL FOR ULCERS

To the Editor: Kindly give me the particulars of the subcutaneous treatment of ulcers with scarlet red in olive oil, as to the strength of solution, required amount of each injection, frequency of administration, how near the diseased area the injections should be made, what untoward symptoms, if any, to guard against, etc.; or refer me to the literature on the subject.

B. SCHWARTZ, Philadelphia.

ANSWER.—Hypodermic injections of scarlet red in oil were made experimentally by Fischer, Schmieden and others with the result of causing atypical proliferation of epithelium, resembling somewhat the process in carcinoma. It was found by Helmholz that the scarlet red oil must be in close contact with the epithelium in order to cause it to proliferate. Consequently for therapeutic purposes it must be applied directly to the wounded surface to be stimulated. The technic of the application of scarlet red ointment to granulating surfaces is described by J. S. Davis (*Bull. Johns Hopkins Hospital*, June, 1909), and an abstract of his article appeared in THE JOURNAL (July 10, 1909, p. 146). Davis uses ointments of various strengths with a simple petrolatum base and also ointments made antiseptic by the addition of various agents, such as boric acid, zinc, iodoform, blue ointment and balsam of Peru. He usually employs an 8 per cent. ointment, which is also the strength recommended by Krajca, Morawitz and others. The ointment is applied over the whole surface if the ulcer is small, otherwise to the granulating border. It must not be left on more than twenty-four hours, as marked irritation and even gangrene may occur. It is well to warn patients that the ointment may stain the dressing as otherwise they may think that the wound has been bleeding. The following articles may be consulted:

Kaehler: *Med. Klinik*, May 31, 1908, p. 836.
Krajca: *München. med. Wchnschr.*, Sept. 22, 1908, p. 1969.
Schmieden: *Zentralbl. f. Chir.*, 1908, xxxv, 153.
Morawitz: Erfahrungen über die Behandlung granulierender Wundflächen mit Scharlachrotsalbe, *Therap. Monatsh.*, September, 1909, p. 479.
Davis, J. S.: *Ann. Surg.*, January, 1910, p. 40.

DETERMINATION OF COAGULATION TIME OF BLOOD

To the Editor:—Kindly publish a reliable method for determining the coagulation time of blood. What materials are necessary? What may be considered the normal time for human blood to clot outside of the body?

H. TROSSBACH, M.D., Colorado Springs, Colo.

ANSWER.—The older methods, such as Hayem's, have been discarded because they did not give uniform results. Wright's method consists in drawing a certain amount of blood into each of a dozen capillary tubes, which are immediately placed in a small vessel containing water at a temperature of 37 C. The time at which the blood is drawn into each tube is noted, the tubes examined at minute intervals by blowing slightly into them and the time when coagulation has occurred is determined by the readiness with which the drop will move. If it cannot be expelled, coagulation is complete. If, when expelled, it shows a slight clot, coagulation has begun and if it is expelled without any evidence of clot, it is noted that coagulation has not begun. The method of Russell and Brodie is considered the best by many. A truncated cone of glass is fitted so as to project downward into a moist chamber; the lower surface of this cone is about 4 mm. in diameter and on it is placed a drop of blood which it must just cover. The glass is then quickly fitted into the moist chamber. A gentle stream of air is directed against the blood by means of a bulb attached to a fine tube, projecting through the side of the moist chamber, and the behavior of the corpuscles in the drop is watched with the low power of the microscope. The corpuscles will at first move freely and independently of one another, but will afterward form clumps on the periphery. As the process of coagulation continues, the corpuscles can no longer move in the drop, but the drop changes in shape and mass, the corpuscles showing first an elastic concentric motion and finally an elastic radial motion, i. e., the current of air will cause the corpuscles to

move toward the center and to spring quickly back to their original position when the current of air ceases. This is taken as the final point; the result can be confirmed by the demonstration of a clot if the disk be quickly removed and the drop touched to a piece of filter-paper.

Various figures have been given as the normal coagulation time, which varies with the instrument used; but with the method described, an average of five minutes has been found. Above nine minutes means delay in coagulation.

SANITOL AND OTHER MOUTH-WASHES

To the Editor:—What is the formula of "Sanitol?" Cannot a similar mouth-wash be prescribed by the physician instead of using the proprietary preparation? W. H. W.

ANSWER.—Sanitol is advertised to contain salitrol, limocine, formol, *Plantago major*, menthol and spirits of cologne. Different formulas appear to have been given, one of which contains boracic acid and the other does not. We have no positive information as to the present composition of sanitol, since the composition of nostrums is subject to change without notice, but can refer to an analysis made some time ago. This showed that it contained phenyl salicylate (salol), formaldehyd, menthol and alcohol. Whether it contained *Plantago major* (common plantain) could not be determined as specific tests for this plant are unknown. The names "salitrol" and "limocine" represent substances which, if they exist at all, are known by those names only to the manufacturers of sanitol. It seems evident that whatever virtues sanitol possesses reside in the formaldehyd, the menthol and the alcohol. What virtue is to be attributed to the salol is uncertain.

A superior preparation of known composition could easily be devised by mixing appropriate quantities of menthol, liquor formaldehydi, and cologne (spiritus odoratus, N. F., page 228) or ordinary alcohol, adding salol if desired. Most formulas for such mouth washes contain thymol instead of menthol. Liquor Antisepticus Alkalinus N. F. may be recommended. The following is given by the British Pharmaceutical Codex:

Salol	2.50
Thymol	0.25
Spirit of anise	1.00
Oil of peppermint	0.50
Elixir of gluside (saccharin)	2.50
Alcohol, sufficient to produce	100.00

Dissolve the salol and the oil of peppermint in 50 of alcohol, add the spirit of anise and the elixir of gluside, make up the required volume by the addition of alcohol, and filter.

Elixir of gluside (Brit. Pharm. Codex, p. 329) contains benzo sulphinide (saccharin) 5 parts, sodium bicarbonate 3 parts, alcohol 12.50 parts, and water to make 100 parts.

P. Caldwell in the *Druggists Circular*, November, 1908, gives the following formula for a mouth-wash:

Tincture of green soap	1	ounce
Glycerin	1	ounce
Water	6	ounces
Alcohol	6	ounces
Oil of peppermint	7	minims
Oil of wintergreen (synthetic)	7	minims
Oil of cloves	$\frac{2}{3}$	minim
Oil of cassia	$\frac{2}{3}$	minim
Compound tincture of cochineal	to color	

Mix the alcohol and water; add the glycerin and the tincture of green soap; then add the oils, previously mixed; and lastly color with the compound tincture of cochineal. Let the mixture stand twenty-four hours, and then filter.

SUDDEN DEATH FOLLOWING ADMINISTRATION OF DIPHTHERIA ANTITOXIN

To the Editor:—Please give references to articles on sudden death following the administration of diphtheria antitoxin.

J. B. GREENE, Asheville, N. C.

ANSWER.—Rosenau, M. J., and Anderson, J. F. (*Bull. 29, Hyg. Lab.*, U. S. P. H. and M.-H. Service, Washington, p. 79) review the literature of the toxic action of horse serum and refer to Gottstein (Ueber Todesfälle, welche bei der Anwendung des Diphtherieheilserums beobachtet worden sind, *Therap. Monatsh.*, 1896) who collected reports of eight deaths following the injection of serum in those having diphtheria and four in those not sick with diphtheria. Rosenau and Anderson state that they have collected reports of nineteen cases and know of several more which have not been reported.

Since 1906, we find the following articles:

Gillette, H. F.: Diphtheria Antitoxin in Bronchial Asthma, THE JOURNAL, Jan. 4, 1908, p. 40.

Boone, E. L.: Sudden Death Following Use of Diphtheria Antitoxin, THE JOURNAL, Feb. 8, 1908, p. 453.

Patterson, F. J.: An Attempted Explanation of Sudden Death Subsequent to Injections of Antitoxin, *Carolina Med. Jour.*, March, 1908.

Stephens, L. C.: Have the Recently Reported Deaths from Diphtheria Antitoxin Been Satisfactorily Explained? *Jour. South Carolina Med. Assn.*, December, 1909.

Miller, E. C. L., and Root, W. W.: Serum Sickness and Sudden Death Following Hypodermic Administration of Antitoxin, *Therap. Gaz.*, February, 1910; abstr. in THE JOURNAL, March 19, 1910, p. 1006.

References may also be made to *Bulletins 36, 45, 50 and 64, Hyg. Lab.*, U. S. P. H. and M.-H. Service, Washington.

It should be noted that the sudden deaths from the administration of diphtheria antitoxin have been shown by Rosenau and Anderson to be due to the action of horse-serum and not to the antitoxin. These accidents are extraordinarily rare and the risk is too slight to deter any one from the use of this beneficent remedy when indicated.

The Public Service

Medical Department, U. S. Army

Changes for the week ended July 23, 1910:

Ekwurzel, George M., major, left Fort Mackenzie, Wyo., en route to Camp of Instruction, Fort D. A. Russell, Target and Maneuver Reservations.

Hill, Felix R., lieut., left Fort George Wright, Washington, en route to American Lake, Wash.

Ford, Clyde S., major, left Fort William H. Harrison, Montana, en route to American Lake, Wash.

Pierson, Robert H., capt., and De Voe, Ralph G., lieut., detailed to duty with troops, military tournament, Tacoma, Wash., July 24 to 31, 1910.

Hess, Louis T., major, assigned to duty as inspector-instructor, Medical and Hospital Corps, First and Fifth New Jersey Infantry, at Sea Girt, N. J., from July 25 to 31, 1910.

Weed, Frank W., capt., assigned to duty as inspector-instructor, Medical and Hospital Corps, Fourth New Jersey Infantry, at Sea Girt, N. J., from Aug. 1 to 6, 1910.

Hendricks, C. M., contract surgeon, July 13, reported for duty at Fort Bliss, Texas.

Carpenter, Alden, dental surgeon, left West Point, N. Y., on 30 days' leave of absence.

Talbott, E. M., capt., and Haverkampf, C. W., lieut., left Camp Dickinson, Chicago, en route to Camp Upton, Sparta, Wis.

Halloran, Paul S., capt., left Walter Reed General Hospital, Takoma Park, D. C., on 10 days' leave of absence.

Brechemin, Louis, Jr., capt., granted 30 days' leave of absence.

Kelly, John P., M.R.C., granted two months' and twenty-eight days' leave of absence.

Pascoe, James B., M.R.C., ordered to Fort Wood, N. Y., for duty.

Reynolds, Charles R., major, in addition to his duties as instructor in Hospital Corps drill and first aid at the Army Medical School in this city, is detailed as instructor at that school in Medical Department administration, customs of the service, and duties of medical officers, vice Lieutenant-Colonel Willaim H. Arthur, Medical Corps, hereby relieved.

Hathaway, Levy M., capt., granted leave of absence for one month.

La Grange, Louis A., colonel, Crosby, Wm. D., lieut.-colonel, and McCaw, Walter D., lieut.-colonel, appointed members of a board of review to meet in this city for the purpose of reviewing the proceedings and findings of medical examining boards in the cases of medical officers found to be disqualified for promotion for reasons other than physical disability contracted in line of duty.

Tefft, William H., capt., granted leave of absence for one month and ten days.

Stuckey, H. W., M.R.C., relieved from duty at Fort Hamilton, N. Y., and ordered to Fort Greble, R. I., for duty.

Reasoner, M. A., capt., granted leave of absence for one month and fifteen days.

Kean, Jefferson A., lieut.-colonel, and Russell, F. F., major, detailed to represent the Medical Department of the Army at the thirty-eighth annual meeting of the American Public Health Association, to be held at Milwaukee, Wis., Sept. 5 to 9, 1910.

Kieruff, H. N., M.R.C., left Fort Missoula, Mont., with the Fourteenth Infantry en route to camp at American Lake, Wash.

Hartnett, E. H., major, is assigned to duty as inspector-instructor of Medical and Hospital Corps detachment, organized militia, State of Delaware, at Rehoboth, Del., July 27 to 30, 1910.

Woodson, Thomas D., lieut., and Duncan, William A., capt., left Vancouver Barracks, Wash., for Camp of Instruction at American Lake, Wash.

Cutliffe, W. O., M.R.C., left Fort McIntosh, Texas, with troops en route to maneuver camp at Leon Springs, Texas.

Manly, C. J., major, June 25, left Fort Douglas, Utah, on detached service with the Fifteenth Infantry, en route to Dale Creek, Wyo.

Grubbs, Robert B., major, left Fort McIntosh, Texas, en route to maneuver camp at Leon Springs, Texas.

Holland, J. H., M.R.C., June 25, left Fort Douglas, Utah, en route to Dale Creek, Wyo., with troops.

Appel, A. H., colonel, left Fort D. A. Russell, Wyo., en route to Camp E. S. Otis, Fort D. A. Russell, Target and Maneuver Reservation, Wyo., for duty as chief surgeon.

Hughes, Leonard S., M.R.C., reports arrival at Camp E. S. Otis, near Dale Creek, Wyo.

Long, Charles J., dental surgeon, left from temporary duty at Fort Andrews, Mass., en route to Fort Rodman, Mass., for temporary duty.

Hutton, Paul C., major, left Fort Snelling, Minn., en route to Camp Upton, Sparta, Wis.

Bevans, James L., capt., and Reynolds, Royal, lieut., ordered to proceed from Army General Hospital, San Francisco, with one-half

of Company B, Hospital Corps, to American Lake, Wash. On completion of this duty to proceed to Atascadero, Cal.

Hopwood, L. L., capt., and Austin, Thomas C., lieut., July 11, ordered to proceed from Fort Lawton, Wash., to the Camp of Instruction, American Lake, Wash., for duty.

Scott, Minot E., dental surgeon. On completion of temporary duty at Fort Worden, Wash., will return to station at Vancouver Barracks, Wash.

Truby, Willard F., major, ordered to proceed from Fort Worden, Wash., to Camp of Instruction, American Lake, Wash.

Fisk, Owen C., lieut., ordered to proceed from Fort Crook, Neb., to Camp of Instruction at Fort Riley, Kan.

McKnight, John R., M.R.C., ordered to proceed from Plattsburg Barracks to Fort Ontario, N. Y., for temporary duty.

Myers, William H., M.R.C., reports arrival at Camp Gilchrist, Fla., left Fort Screven, Ga., on July 17, 1910.

Barney, Fred M., M.R.C., left Fort Clark, Texas, for duty at Camp of Instruction, Leon Springs, Texas.

Gibson, Franklin J., contract surgeon, reported for duty at Fort Clark, Texas.

Wertenbaker, C. L., M.R.C., granted 30 days' leave of absence.

Winn, Robert N., major, granted 3 months' and 21 days' leave of absence to take effect about Oct. 1, 1910.

Changes for the week ended July 30, 1910:

The following named medical officers are detailed for duty at the Camp of Instruction, Pine Camp, Jefferson County, N. Y., and will proceed to the camp so as to arrive not later than July 28, 1910: Majors Willcox, Charles; Reynolds, F. F.; Wilson, James S.; Reno, William F.; Patterson, R. U., and Lieutenants Davis, William C., and Casper, Joseph.

Culler, Robert M., capt., granted 30 days' leave of absence.

Barney, Charles N., major, ordered to Fort Monroe, Va., for temporary duty.

Vose, William E., major, ordered to proceed to Fort Riley, Kan., about August 15, for duty at Camp of Instruction until Sept. 15, 1910.

Ferenbaugh, Thomas L., lieut., will be relieved from duty at Camp of Instruction, Fort D. A. Russell, Maneuver Reservation, August 10, and will return to Fort Des Moines, Iowa.

Gapen, Nelson, capt., now on leave of absence, will proceed to Pine Camp, N. Y., for duty, and on completition of this duty will return to leave status.

Boyer, Perry L., capt., sick leave of absence extended 15 days.

McMillan, C. W., M. R. C.; Murtagh, John A., major; Fuller, Leigh A., major; Jenkins, Frederic E., M. R. C.; Van Dusen, James W., major; Burket, John A., lieut.; Ford, Joseph H., major, will proceed from their respective stations to the Camp of Instruction, Fort Riley, Kan., reporting not later than Aug. 13, 1910, for duty.

Hartsock, F. M., major, and Newlove, George, M. R. C., ordered to duty with troops from station to Camp Perry, Ohio.

Scott, Minot E., dental surgeon, left Vancouver Barracks, Wash., en route to San Francisco, for transportation to Manila, P. I.

Pulver, Arthur L., M. R. C., ordered to proceed from temporary duty at Fort Wood to Fort Jay, N. Y., for temporary duty.

Stallman, George P., M. R. C., ordered to proceed from Fort Douglas, Utah, to Fort Wingate, N. M., for temporary duty.

Reynolds, F. P., major, left Fort Monroe, Va., en route to Pine Camp, N. Y., for duty.

Allen, John H., major, left camp at Gettysburg, Pa., with troops en route to station, Fort Myer, Va.

Willcox, Charles, major., left Fort Totten, N. Y., en route to Pine Camp, N. Y., for duty.

Hoff, John Van R., col., will proceed, at the proper time, to the Camp of Instruction, Pine Camp, Jefferson County, N. Y.

Grissinger, Jay W., capt., on arrival at Seattle, Wash., will proceed to Fort Des Moines, Iowa, for duty.

Cowles, Calvin D., Jr., lieut., on his relief from duty as surgeon of the transport *Logan*, will proceed to West Point, N. Y., for duty.

Gandy, Charles M., lieut.-col., granted leave of absence for 3 months, effective on being relieved from duty at West Point, N. Y.

Norris, H. C. R., M. R. C., orders directing him to proceed to the Philippine Islands, for duty, revoked.

Lyster, William J. L., major, granted leave of absence for 4 months, to take effect about Oct. 1, 1910.

Whitney, Walter, M. R. C., orders directing him to proceed to Fort Egbert, Alaska, for duty, revoked.

Suggs, Frank, M. R. C., relieved from duty at Fort Hamilton, N. Y., and ordered to Fort Egbert, Alaska, for duty.

Owen, L. J., capt., detailed for duty as inspector-instructor of the Hospital Corps, Organized Militia of Michigan, to be held at Ludington, Mich., Aug. 9-18, 1910.

Scott, George H., capt., granted leave of absence for 2 months, with permisison to go beyond the sea.

Peed, George P., capt., on completion of duty at Camp of Instruction, Gettysburg, Pa., directed to proceed to Fort Bayard, N. Mex., for temporary duty at General Hospital.

Bispham, William N., capt., granted 20 days' leave of absence.

Long, Charles J., dental surgeon, returned to Fort Adams, R. I., from temporary duty at Fort Rodman, Mass.

Gunckel, George I., dental surgeon, returned to Fort McPherson, Ga., from leave of absence.

Medical Corps, U. S. Navy

Changes for the week ended July 30, 1910:

Rhoades, G. C., asst.-surgeon, ordered to duty at Naval Hospital, Norfolk, Va.

Downey, J. O., asst.-surgeon, detached from Naval Hospital, Norfolk, Va., and ordered to duty at Naval Hospital, Philadelphia.

U. S. Public Health and Marine-Hospital Service

Changes for the week ended July 20, 1910:

Wasdin, Eugene, surgeon, granted 1 month's leave of absence from July 22, 1910, on account of sickness.

Eager, J. M., surgeon, granted 7 days' leave of absence from July 21, 1910.

Nydegger, J. A., surgeon, leave of absence for 7 days from July 3, 1910, amended to read on account of sickness, in accordance with paragraph 202, Service Regulations.

Wickes, H. W., P. A. surgeon, directed to proceed to Washington, D. C., and report to chairman of board of medical examiners to determine his fitness for promotion to the grade of Surgeon, July 20, 1910.

Holt, John M., P. A. surgeon, granted 17 days' leave of absence from Aug. 11, 1910, and 19 days' leave of absence from Sept. 1, 1910.

Glover, M. W., P. A. surgeon, granted 10 days' leave of absence from July 25, 1910.

Lloyd, B. J., P. A. surgeon, granted 1 month's leave of absence from July 20, 1910, on account of sickness.

Roberts, Norman, P. A. surgeon, granted 1 day's leave of absence July 21, 1910, under Paragraph 191, Service Regulations.

Pettyjohn, Joseph, P. A. surgeon, granted 1 month's leave of absence from Aug. 15, 1910, on account of sickness.

Knight, C. P., asst.-surgeon, granted 7 days' leave of absence from July 18, 1910, under Paragraph 191, Service Regulations.

Gray, E. George, acting asst.-surgeon, granted 7 days' leave of absence from July 25, 1910.

Onuf, B., acting asst.-surgeon, granted 4 days' extension of leave of absence from July 17, 1910, on account of sickness.

Safford, M. Victor, acting asst.-surgeon, granted 10 days' leave of absence from July 20, 1910.

Seavey, L. T., acting asst.-surgeon, granted 21 days' leave of absence from Aug. 8, 1910.

Walker, Thos. D., Jr., acting asst.-surgeon, leave of absence for 11 days from June 28, 1910, amended to read 8 days from June 28, 1910.

Board of medical officers convened to meet at the Bureau July 30, 1910, for the examination of Passed Assistant Surgeon H. W. Wickes, to determine his fitness for promotion to the grade of surgeon. Detail for the board: Assistant Surgeon General J. D. Long, chairman; Surgeon W. P. McIntosh; Surgeon G. B. Young, recorder.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

Optometry Campaign in Wisconsin

The Optical Journal and Review for June 30 says:

"Good ammunition for the opening gun of their new campaign for an optometry law has just been secured by the Wisconsin association. The following postal and reply card was sent to each of the 2,700 physicians in the state:

Dear Doctor: At the next session of the legislature there will be introduced a bill providing that all persons other than physicians who practice optometry, or in other words, who examine eyes and fit glasses must pass a satisfactory examination before a board appointed by the governor for that purpose.

We believe that you favor such a law, and will be thankful to you if you will so state on the attached reply card and mail same. If you do not favor such a law, we will be glad to hear from you and to know your reasons.

Hoping for a prompt reply, I am

Very truly yours,

C. D. WAUGH, Secretary, Milwaukee.

I do————favor the passage of a law requiring all persons, other than physicians, to pass a satisfactory examination before being allowed to practice optometry, or in other words before being allowed to examine eyes and fit glasses in Wisconsin.

.....M.D.

If you do not favor the proposed law, fill in the word "not" in the proper place at the top of the card.

"A recent number of the *Wisconsin Medical Journal* contained a reproduction of the card and an article asking physicians not to indorse the proposed law. In spite of this, however, 1,050 of the 1,100 replies received indorsed the proposed law. Coming from physicians, the optometrists think that they have in these replies an excellent weapon to use as soon as the legislature meets. This will not be for seven months yet."

Attention has already been called to the methods used in securing the endorsement of unthinking physicians for the "optometry" bills before presentation before state legislatures. These endorsements are secured through a specious and disingenuous presentation of the objects of the bill, which masks its real import. Almost invariably when the situation is explained to physicians who have endorsed such a measure they are emphatic in their statements of opposition to it. This question should be brought before every county society in every state and the members enlightened in order that their signatures may not be secured for the endorsement of unwise measures.

State Boards of Registration

COMING EXAMINATION

NEBRASKA: State House, Lincoln, August 10-11. Sec., Dr. E. Arthur Carr, 141 S. 12th St., Lincoln.

Louisiana May Report

Dr. F. A. LaRue, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, May 19-20, 1910. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 122, of whom 93 passed and 27 failed. Two candidates did not complete the examination. Three candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Alabama	(1910)	75, 82.6
Birmingham Medical College	(1909)	82.6
College of P. & S., Little Rock	(1910)	80.0
Northwestern University Medical School	(1892)	83.8
Kentucky University	(1904)	80.2
Flint Medical College	(1909)	75
Tulane University of Louisiana	(1890) 80; (1901) 84; (1909) 80.8; (1910) 75, 75, 75.4, 76.6, 76.6, 76.8, 78, 78.4, 79, 79.6, 79.6, 79.6, 79.6, 80, 80.2, 80.2, 80.4, 80.6, 81, 81, 81, 81.6, 81.6, 82.2, 82.6, 83.8, 83.8, 84.2, 84.4, 84.4, 84.6, 84.8, 85.6, 86.2, 86.2, 86.4, 86.4, 86.4, 86.8, 86.8, 86.8, 86.8, 87, 87.6, 87.6, 87.8, 88.2, 88.2, 88.4, 88.4, 88.6, 88.8, 89, 89.2, 89.4, 89.4, 91.2, 94.		
Saginaw Valley Medical College	(1903)	84.6
Vanderbilt University	(1910)	80.8, 85.4
University of Nashville	(1910)	79.6, 79.8, 80.6, 83.2, 83.2, 84.8
University of the South	(1901)	89.2
Memphis Hospital Medical College	(1910)	75, 75.4, 76, 76.2, 77.6, 79.6, 80, 80.2, 80.2, 81.4, 84.2, 84.6.
College of Physicians and Surgeons, Memphis	(1910)	81.0
Meharry Medical College	(1910)	79.2
Galveston Medical College	(1888)	79.8

FAILED College		
University of Alabama	(1910)	71.2
University of Arkansas	(1909)	63.4
College of P. & S., Little Rock	(1910)	71
Louisville Medical College	(1903) 69.4; (1906)	56.4
Flint Medical College	(1910)	56.6, 58.8
Tulane University of Louisiana	(1910)	71.4, 73.8
Baltimore Medical College	(1907)	73
Ensworth Medical College	(1892)	49.8
College of P. & S., Kansas City	(1901)	42.2
University of the South	(1903)	67.8
Meharry Medical College	(1909)	60, 66
Memphis Hospital Medical College	(1900) 65.2; (1908) 65.2, 63.8; (1909) 47.2; (1910) 65, 68.4, 68.4, 69.6, 69.6, 72, 73.8.	
Dallas Medical College	(1903)	62.6

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Louisville	(1909)	Kentucky
University of Maryland	(1895)	Virginia
University of Virginia	(1909)	Arkansas

Massachusetts May Report

Dr. E. B. Harvey, secretary of the Massachusetts Board of Registration in Medicine, reports the written examination held at Boston, May 10-12, 1910. The number of subjects examined in was 13; total number of questions asked, 70; percentage required to pass, 75. Practical laboratory tests were also required. The total number of candidates examined was 36, of whom 18 passed, including 2 non-graduates and 2 osteopaths, and 18 failed, including 4 non-graduates and one osteopath. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Tulane University of Louisiana	(1908)	76.5
University of Maryland	(1889)	80
Medical School of Maine	(1895)	75
Baltimore Medical College	(1909)	75
Harvard Medical School	(1909) 80, 80.5; (1910).	78.4
Tufts College Medical School	(1909)	79, 80.5
Dartmouth Medical School	(1908)	85
Jefferson Medical College	(1905)	85.1
Hahnemann Medical College, Philadelphia	(1909)	76.2
University of Pennsylvania	(1889)	80
University of Naples, Italy	(1905)	75

FAILED College		
Medical College of Georgia	(1901)	49.3
Baltimore University	(1906)	57.4
College of P. & S., Baltimore	(1909)	72
College of Physicians and Surgeons, Boston	(1908) 53.5, 59.5, 61.9, (1909) 63, 67.	
Tufts College Medical School	(1909)	69.4
Leonard Medical School	(1908)	67.5
University College of Medicine, Richmond	(1907)	61.3
Laval University, Canada	(1909)	62.1
University of Naples, Italy	(1906)	70.3

Book Notices

ALCOHOL A DANGEROUS AND UNNECESSARY MEDICINE. How and Why. What Medical Writers Say. By Mrs. Martha M. Allen, Superintendent of the Department of Medical Temperance for the National Woman's Christian Temperance Union. Cloth. Price, $1.25. Pp. 435. Marcellus, N. Y.: Department of Medical Temperance of the National Woman's Christian Temperance Union [1910].

In this preface to the second edition of her book, Mrs. Allen says that ten years have brought about a great change in the attitude of physicians as regards the use of alcohol as a drug. This is largely true, as anyone following the literature of the day can observe. It is probable also that the work of the society under the auspices of which her book was first published has contributed considerably in an indirect, if not in a direct way, to this result. Physicians are not insensible to influences from any quarter and many of them have possibly been induced to give more particular attention to this subject than they would otherwise have done.

While at the present time the majority of physicians consider alcohol a useful if not an indispensable agent in the treatment of disease at times, they also recognize its dangers as a habit-inducing drug, and an increasingly large number of them are making less and less use of it. This is shown in the reports from hospitals as well as from the testimonies of physicians, which Mrs. Allen has collected and added to the testimonies already given in her earlier edition. Without the scientific pretensions of the report of the committee of fifty it is probable that this book is far more influential and that its general conclusions are more acceptable to the profession than those of the other work.

In this edition many additions have been made, notably those in the remarks on "patent medicines" and proprietary foods, and on the recent researches of Laitinen, Reid Hunt and others. It must be remembered that the Woman's Christian Temperance Union was early an active agent in the campaign against nostrums containing alcohol, etc., so that when Mr. Bok began his series of articles in the *Ladies' Home Journal* he was accused of "bowing to the clamor of the W. C. T. U." For this at least the organization deserves the gratitude of the medical profession.

The work of the Council on Pharmacy and Chemistry is referred to by Mrs. Allen and she might have used it even more. She is not always as cautious in her selection of authorities as a physician might desire. This, with some carelessness of proofreading, is the main blemish of the work, which in most respects is excellent in its way and worthy of respectful consideration by physicians, though all may not accept fully its conclusions.

BEITRÄGE ZUR PHOTOGRAPHIE DER BLUTSPEKTRA, unter Berücksichtigung der Toxikologie der Ameisensäure. Von Reg.-Rat Dr. med. E. Rost, Mitglied d. k. Gsndhsamte. und Dr. med. Fr. Frantz, ständ. Mitarbeiter im k. Gsndhtsamte., und Dr. phil. R. Heise, technischem Rat im k. Gsndhtsamte. Paper. Pp. 304, with 15 illustrations. Price, 9 marks. Reprint from *Arb. a. d. k. Gsndhtsamte*, XXXII, No. 2. Berlin. Verlag von Julius Springer, 1909.

This monograph deals with the technic of photographing absorption spectra and the application of spectrum photography to the study of hemoglobin and derivatives thereof. For the purpose of securing photographs of the entire visible spectrum and at the same time a register whereby the exact location of absorption bands may be determined directly from the picture, the authors employ a specially devised apparatus. The feature of this consists in an appropriate helium bulb, the emission spectrum from which is recorded simultaneously on the same plate with the absorption spectrum under study. In the numerous and remarkably beautiful photographic plates with which this work is illustrated the entire spectrum shows with perfect clearness, while the bright-line helium grating serves for purposes of orientation. The authors claim for this method a superiority over any in which results must be subjectively recorded. With their technic the authors negative the view that formic acid poisoning causes methemoglobinemia. Perhaps the most valuable part of the work lies in the certainty with which it establishes the characters of normal blood spectra. Since minute traces of a number of abnormal blood pigments (e. g., methemoglobin in alkaline poisoning) can be detected with certainty it is suggested that this method might find practical application in the clinic.

HIGH-FREQUENCY ELECTRIC CURRENTS IN MEDICINE AND DENTISTRY. Their Nature and Actions and Simplified Uses in External Treatments. By S. H. Monell, M.D., Professor of Static Electricity, International Correspondence Schools, 1898-1903. Cloth. Price, $4 net. Pp. 465, with 32 illustrations. New York: William R. Jenkins Co., 851 Sixth Avenue, 1910.

We confess our inability to take this volume seriously. It is one of the many works with which electrotherapeutics is burdened, which commingle fact and fancy (as the workaday man sees things) until the statement of the subject is hopelessly discounted to the mind of the matter-of-fact reader. The author begins with a long fable; and the rest of the work seems to us a mixture of fable, poetry, romance and other products of the imagination. Not that we would imply that the author is insincere. Far from that. He has the sincerity that comes from unbounding enthusiasm and endless confidence in his therapeutic agent—a confidence and enthusiasm that amount to ecstasy. And while ecstasy may produce poetry, it is not the mental state to record or weigh cold physical facts. "As the vision of the resplendent structure [high-frequency electrotherapy we suppose he means] rises before our therapeutic eye we love to dwell on its noble possibilities, its sun-like center from which would radiate the blessings of these greater remedies to mankind, of comforts spread abroad, of mercies scattered, of lengthened lives, and fuller usefulness to myriads of men and women now borne down by the weight of burdens that drugs do not lighten and that surgery does not help." The book can be commended for its Homeric swing and imagery. But, oh, that fewer men who write on electrotherapy would adopt this style, and more would state the really valuable uses of the method in unexaggerated convincing words!

DIE PROCTO-SIGMOSCOPIE UND IHRE BEDEUTUNG FÜR DIE DIAGNOSTIK UND THERAPIE DER KRANKHEITEN DES REKTUM UND DER FLEXURA SIGMOIDE. Von Dr. H. Strauss in Berlin. Cloth. Price, 7.50 marks. Pp. 149, with illustrations. Leipzig: G. Thieme, 1910.

This work is divided into five sections, the first being devoted to a short historical introduction, and the larger portion to technic. In Part 2 the various instruments are described, and the anatomy is fully elaborated and well illustrated. In Part 3 the pathology of the different regions is carefully described, beginning with the anal region and ending with the sigmoid. Parts 4 and 5 are devoted to treatment, many cases being reported to emphasize the author's methods and results. A number of satisfactory colored illustrations show the normal and diseased appearances of the structures, a particularly useful one being Plate 1, showing a longitudinal section of the lower intestinal canal from the sigmoid to the anus in the normal state, with its various divisions, the external and internal sphincters, Houston's valves, etc. This work can be recommended to readers of German who wish a complete exposition of this modern method of diagnosis.

THERAPEUTISCHE TECHNIK FÜR DIE ÄRZTLICHE PRAXIS. Ein Handbuch für Aerzte und Studierende. Von Dr. Julius Schwalbe. Second Edition. Paper. Price, 22 marks. Pp. 979, with 537 illustrations. Leipzig: Georg Thieme, 1910.

To this addition have been added two entirely new sections—one on the important subjects of dietetics and one on skin and venereal diseases. The article on dietetics occupies nearly 100 pages and constitutes a valuable addition to the work. In addition to general principles, the dietetic treatment of metabolic diseases and diseases of the digestive organs is described in detail. The section on skin diseases and syphilis gives the technic of various local applications to the skin and especially the methods for the mercurial treatment of syphilis. The book is published in one volume of 979 pages and is well illustrated. To the physician who is acquainted with German, this volume cannot fail to be a valuable guide in the application of instruments and methods of treatment.

FIRST PRINCIPLES OF AGRICULTURE. By Emmet S. Goff, Late Professor of Horticulture, University of Wisconsin, and D. D. Mayne, Principal, School of Agriculture, St. Anthony Park, Minn. Introduction by Ex-Governor W. D. Hoard. Cloth. Price, 80 cents. Pp. 262, with illustrations. Chicago: American Book Co., 1910.

This is a "first aid" to the garden, but it also carries the lover of nature not a little way into scientific agriculture. It is a good book to have around the home and the farm. The subject of the hygiene of the dairy is not neglected. Valuable tables are appended and the book is well indexed, illustrated and subdivided, so that it is easy to consult.

Medicolegal

U. S. Supreme Court on Constitutionality of Practice Acts, Especially on Exceptions

The Supreme Court of the United States says, in Watson vs. State of Maryland (30 S. Ct. R., 644), that it is too well settled to require discussion at this day that the police power of the states extends to the regulation of certain trades and callings, particularly those which closely concern the public health. There is perhaps no profession more properly open to such regulation than that which embraces the practitioners of medicine. Dealing, as its followers do, with the lives and health of the people, and requiring for its successful practice general education and technical skill, as well as good character, it is obviously one of those vocations where the power of the state may be exerted to see that only qualified persons shall undertake its responsible and difficult duties. To this end many of the states of the Union have enacted statutes which require the practitioners of medicine to submit to an examination by a competent board of physicians and surgeons, and to receive duly authenticated certificates showing that they are deemed to possess the necessary qualifications of learning, skill and character essential to their calling. In Dent vs. West Virginia, 120 U. S., 114, the subject is elaborately considered, and this view affirmed by Mr. Justice Field, speaking for the court.

In such statutes there are often found exceptions in favor of those who have practiced their calling for a period of years. In the Dent case an exception was made in favor of practitioners of medicine who had continuously practiced their profession for ten years prior to a date shortly before the enactment of the law. Such exception proceeds on the theory that those who have acceptably followed the profession in the community for a period of years may be assumed to have the qualifications which others are required to manifest as a result of an examination before a board of medical experts. In the Maryland statute under consideration, the excepted class were those who had practiced before Jan. 1, 1898, being more than four years before the passage of the law, and who could show, presumably with a view to establishing that they were actively practicing at that time, that they had treated at least twelve persons within one year of that date.

Conceding the power of the legislature to make regulations of this character, and to exempt the experienced and accepted physicians from the requirements of an examination and certificate, the details of such legislation rest primarily within the discretion of the state legislature. It is the lawmaking body, and the federal courts can interfere only when fundamental rights guaranteed by the federal constitution are violated in the enactment of such statutes.

This subject has been so frequently and recently before this court as not to require an extended consideration. The right to regulate occupations was considered by this court at the present term in the case of Williams vs. Arkansas, 217 U. S., 79. It was therein held that regulations of a particular trade or business essential to the public health and safety were within the legislative capacity of the state in the exercise of its police power, and that unless such regulation are so unreasonable and extravagant as to interfere with property and personal rights of citizens, unnecessarily and arbitrarily, they are within the power of the state; and that the classification of the subjects of such legislation, so long as such classification has a reasonable basis, and is not merely arbitrary selection without real difference between the subjects included and those omitted from the law, does not deny to the citizen the equal protection of the laws. Applying these tests, the court sees nothing arbitrary or oppressive in the classification of physicians subject to the provisions of this statute, which excludes from its requirements those who have practiced prior to Jan. 1, 1898, and were able to show that they had treated at least twelve persons in a professional way within a year of that date.

But it was insisted that undue discrimination was shown and equal protection of the law denied in the exceptions of the statute ". . . . but nothing herein contained shall

be construed to apply to gratuitous services, nor to any resident or assistant resident physicians or students at hospitals in the discharge of their hospital or dispensary duties, or in the office of physicians, or to any physician or surgeon from another state, territory, or district in which he resides, when in actual consultation with a legal practitioner of this state, or to commissioned surgeons of the United States army or navy or Marine Hospital Service, or to chiropodists, or to midwives, or to masseurs or other manual manipulators, who use no other means; nor shall the provisions of this subtitle apply to physicians or surgeons residing on the borders of a neighboring state, and duly authorized under the laws thereof to practice medicine or surgery therein, whose practice extends into the limits of this state: Provided, that such practitioners shall not open an office or appoint places to meet their patients or receive calls within the limits of this state without complying with the provisions of this subtitle: Provided, that the same privileges be accorded to licensed physicians of this state: Provided, further, that nothing in this subtitle shall annul any of the provisions of article 32, title 'Dentistry,' nor shall apply to any registered graduate of dental surgery now practicing in the said state of Maryland, with the sign titles: Dentist, surgeon dentist, dental surgeon, or stomatologist."

The court will not take occasion to consider each of these exceptions. A reading of them makes it manifest that they are not without reason. Before a law of this kind can be declared violative of the Fourteenth Amendment as an unreasonable classification of the subjects of such legislation because of the omission of certain classes, the court must be able to say that there is "no fair reason for the law that would not require with equal force its extension to others whom it leaves untouched."

The stress of the argument as to these exceptions was put on the exemption of resident physicians, or assistant physicians, at hospitals, and students on hospital and dispensary duties. The selection of the exempted classes was within the legislative power, subject only to the restriction that it be not arbitrary or oppressive, and apply equally to all persons similarly situated. The court cannot say that these exceptions nullify the law. The reason for them may be that hospitals are very often the subject of state or municipal regulation and control, and employment in them may be by boards responsible to public authority under state law or municipal ordinance. Certainly the conduct of such institutions may be regulated by such laws or municipal regulations as might not reach the general practitioner of medicine. In any event, the court cannot say that these exceptions are so wholly arbitrary and have such slight relation to the objects to be attained by the law as to require the courts to strike them down as a denial of the equal protection of the law, within the meaning of the federal constitution.

Another point: The Court of Appeals of Maryland determined that Section 99 of Article 43 of the Maryland Code of 1904, under which the indictment in this case was prosecuted, making it a misdemeanor to attempt to practice medicine in the state of Maryland without registration, was not subject to the limitations of Section 80, relating to the sending of notice, etc. The offense, the Courts of Appeals held, was created solely by Section 99 in broad and general language, without exceptions or qualification, and that for conviction under that section it was not essential to prove the sending of the notice required by Section 80, which provides for the sending of notices to physicians practicing in the state without being legally registered. That construction of the Maryland statute is conclusive on this court (the Supreme Court of the United States). The accused had a trial before a court and jury under the statutes of Maryland, was proceeded against under the forms provided for by the laws of that state, and under a statute which the highest court of the state has held completely defined the offense without resorting to the necessity of notifying unregistered physicians before they became liable for the penalties of the act for practicing without registration. The contention that the conviction in this aspect was without due process of law under the federal constitution cannot be sustained.

Society Proceedings

MEDICAL SOCIETY OF NEW JERSEY

One Hundred and Forty-fourth Annual Meeting, held at Atlantic City, June 28-30, 1910

The officers elected were named in THE JOURNAL, July 23, p. 231.

Oration on Surgery: When and By Whom Should Surgery Be Advised?

DR. JOHN B. DEAVER, Philadelphia: Unless a surgeon is very eminent, the most of his practice comes from his colleagues, and not from the outside public. At what point should physician and surgeon first meet to secure the best results? The physician should not delay until he himself has decided that surgery is necessary. Many physicians entertain an exaggerated notion of the risks of certain operations, and many operations are deferred to a less convenient season because of an ungrounded fear of the operation itself. The physician alone is not a safe judge of the time or the necessity for surgical treatment. His medical knowledge of the case is invaluable, and should be largely used in the decision. That decision, however, should be arrived at as the product of medical and surgical deliberation together. When this is done early in the progress of the case, the solution of the question that I have propounded will issue easily and naturally, as a result of mutual understanding and agreement; the best interests of the patient will be conserved, and precipitate surgery will be checked, and likewise eleventh-hour operations be relegated to the past.

Empyema

DR. IRWIN H. HANCE, Lakewood: The oft-repeated maxim, "Evacuate pus, whenever found," enunciates the only treatment for empyema. Delay is always attended with the danger of general sepsis; and the postponed operation not only increases the chance of a more chronic suppuration, but also materially diminishes the chance of the compressed lung expanding thoroughly. The operation in all acute conditions, and almost all chronic ones, should be immediate exsection of one or more ribs. Even in chronic tuberculous cases, the presence of pus will add another toxemia to the one already present. If prolonged suppuration exists after the operation, the injection of bismuth paste should be resorted to. This does not, however, seem to be free from danger, since some cases of poisoning have been reported. What the future of serum therapy may be is at present unknown.

DISCUSSION

DR. FRANK D. GRAY, Jersey City: I have been much interested in two probable improvements in the routine treatment of empyema. One is the use of bismuth paste, which I believe will help us out in many of these cases. The other improvement is the injection of two ounces of a 2 per cent. solution of formalin in glycerin, the theory being that this will sterilize the pleural fluid and eventually lead to its absorption. Rib-resection and thoracotomy are not serious operations, but they almost certainly convert a case of empyema into a more or less purulent septic condition. The entrance of air and the prolonged drainage are often disastrous. If a thoracotomy must be done, an improvement on the old rubber-tube drainage may be employed. There has recently been devised a short metal tube that merely goes through the chest wall, and is provided with flanges to prevent its slipping into the wound. It cannot be compressed between the ribs or between the expanding lung and the chest-wall.

DR. HENRY L. COIT, Newark: In the majority of cases of empyema, in children, at least, pus in the pleural cavity should be removed at once. The only way to do this is to make an opening large enough for the pus to run out.

DR. JOHN C. MCCOY, Paterson: The poor results obtained in these cases are, in large measure, due to the fact that the openings are not free enough, and in order to obtain successful results in empyema, the cases must be followed very

carefully and methodically after the operation. In eight or nine cases in which bismuth injections were used I have not found it particularly efficient. During the last two or three years, I have made it a cardinal principle, particularly in adults, to start the patient as early as possible with lung-gymnastics supplemented by the Bier hyperemic treatment over the wound, and I have found that the period of convalescence has been greatly shortened and the results have been far more satisfactory.

Organic Disease of the Nervous System

DR. WILLIAM M. LESZYNSKY, New York City: The advantages of the early diagnosis of organic disease of the nervous system, from both a clinical and sociologic standpoint, cannot be overestimated. For instance, the disastrous consequences of failure to recognize brain tumor are at times deplorable. The fundamental principles of neurology are not very difficult to attain. The primary cause of many avoidable errors in diagnosis is the neglect of the large majority of general practitioners to avail themselves of the opportunity to obtain these essential requirements, preliminary working knowledge of the general anatomy and physiology of the nervous system, a familiarity with modern clinical methods of examination, and the habit of accurate observation; hence, the unfortunate tendency that prevails to ascribe many apparently obscure symptoms to hysteria or neurasthenia, while organic disease is unmistakable. Excessive irritability of the nervous system is often a forerunner of general paresis or some developing psychosis. An examination limited to the nervous system is incomplete and inadequate, for many symptoms referable to the nervous system may result from disease of other organs; and, on the other hand, obtrusive symptoms confined to a single organ may be inexplicable to the specialist until some underlying organic nervous disease is discovered.

Acute Pyelitis in Children

DR. GEORGE B. PHILHOWER, Nutley: I believe that the female sex and the colon bacillus, plus some other factor, must work together in order to produce pyelitis. All of my patients were girls; all had colon bacilli in the urine; and five of the six either had had influenza or had been exposed to it. The treatment is the administration of citrate of potash in large doses, sufficient to neutralize the strongly acid urine; hexamethylenamin, combined equally with benzoate of soda every three hours, is even better than the citrate of potash in the cases in which the colon bacilli predominate. The treatment should not, however, be continued too long.

DISCUSSION

DR. HENRY L. COIT, Newark: It is important to recognize the fact that the innocent character of the colon bacillus may be changed into a type which is not only vicious, but virulent. I think that the bulk of the evidence is in favor of the urethra and bladder as the means of access of the pyogenic bacillus to the kidney.

DR. D. J. MILTON MILLER, Atlantic City: I do not think that it is yet recognized by the profession that pyelitis in children is a common cause of unrecognized fever—probably the most common outside of otitis media. When a child has fever that cannot be accounted for, it is well to examine the urine. Pyelitis is a very common cause of extreme anemia in children. As to the etiology, I have no doubt that the influenza bacillus is in a measure the cause of the disease.

DR. J. FINLEY BELL, Englewood: I do not believe that it is possible to make a diagnosis of the bacterial contents of the urine by a simple microscopic examination. Cultures must be made. The urine for this purpose must in all cases be taken by catheterization. I doubt that the *Bacillus coli* is the cause of pyelitis in children, although it is present in most of the cases. In most of my cases, recognizable chills were not present in young children, but the temperature curve in these cases is characteristic. Anemia is rather frequent in long-continued cases. If the patients are seen early, they will get well promptly under hexamethylenamin.

DR. FRANK W. PINNEO, Newark: If a urinalysis were made more frequently in children with disease of a febrile character, much valuable information might be obtained. It is quite necessary to get the urine by catheter. The differentiation between cystitis and pyelitis is not easily made without the aid of the microscope; but perhaps cystitis apart from pyelitis does not occur in children as in adults.

A Plea for a Higher Standard of Medical Education

DR. BENJAMIN A. WADDINGTON, Salem: The spirit of the age is one of progression, stimulated in all the walks of life by the keener competition. This means that he who would be even measurably successful in the struggle for existence must be armed with all the possible advantages in entering the lists for preferment in his chosen vocation. All the walks of life now demand more and more of the man; and this demand will go forward with herculean bounds. The wisdom of to-day will be the foolishness of to-morrow; the high standard of the now will be the minor height of the then. It is to be regretted that the medical profession does not set a standard for the admission to its body at the very highest possible notch, and then see that those who would be of us measure rightly to gauge. Medical men seem to lack the grit to enforce these views, and to be afraid to speak out manfully and strike from the shoulder at what detracts or will detract from their high calling. The reason that the physician does not occupy the elevated plane in the esteem of the community that he once did is that he does not compel a high respect for his profession from the laity by the prevention of its being attained by incompetents.

The Broader Aspects of the Science of Medicine

DR. W. GILMAN THOMPSON, New York City: During the past two or three years, very distinguished advancement has been made in many of the broader aspects of medical science. Never before have our national and state societies been so efficiently organized and so productive of the highest scientific results. The public, however, is slow to appreciate its debt to medical science, and continues to follow strange gods. There is a misconception on the part of the laymen as to specialism. The public have been taught to regard the human organism as a sort of checker-board, each division requiring an independent specialist to understand it. This lamentable attitude of mind leads to serious, if not fatal, blunders. A factor in the depreciation of medical worth may be found in the estimate which many physicians place on themselves by asking so little for their services; another lies in the lack of firmness on the part of many physicians in denouncing the wiles of the charlatan or the evil that lurks in the nostrum. Still another method of alienation of patients exists in the modern habit of permitting the use of "patent" or proprietary remedies. A medical society should occupy the position of a clearing-house or court of appeals in all the broader aspects of medical science, so far as they concern the general public interests; and the public would soon become accustomed to seek its advice and trust its decisions.

The Ethical Aspect of Expert Testimony in Relation to the Plea of Insanity as a Defense to an Indictment for Crime

DR. CARLOS F. MACDONALD, New York City: The present method of presenting expert testimony is by no means perfect, but it is far better and more practical than many of the visionary schemes that have been brought forward from time to time by certain alienists. The most practical solution of the difficulty would be to make statutory provision for the appointment by the court of one to three experts, when occasion arises, the law to provide that every physician of repute in the particular branch of the medical science to which the question of expert opinion may relate shall be appointed; these experts to have full and free access to all the evidence in the case, as well as to the defendant, for the purpose of examination; and then to submit to the court for transmission to the jury a written report setting forth therefrom the evi-

dence and the evidence on which such conclusions were based; the cross-examination of the experts to be restricted to the matters embraced within their direct statement of facts and opinions, and the compensation of the experts to be fixed by the courts. If a physician is to appear as an expert witness, he should keep away from the counsel while in court, and should take no part in the conduct of the case which would put him in an attitude of assistant to the counsel or of a biased or interested party. When insanity is pleaded as a defense, the question of insanity should be kept out of the case entirely during the trial; the jury should pass only on the question of the guilt or innocence of the accused, irrespective of his mental condition; then, if the defendant is convicted, let the court appoint a commission of competent alienists to determine his mental condition. If this were done, it is probable that much of the conflict of opinion in our law courts respecting the question of responsibility in criminal cases where insanity is offered as a defense, would disappear.

Stomach Surgery

DR. EDWARD STAEHLIN, Newark: I wish to make a plea for more frequent and earlier exploratory operations—not exploratory operations made as a last resort, simply to close the wound again with regret for what might have been done earlier; but exploratory operations for the purpose of making a diagnosis and then proceeding in accordance with what is found. Second, let me make a plea for early operations in the particular class of cases in which the diagnosis is made and in which the indication for operation is clear. The operative procedure instituted in all my cases, when it was called for, was the posterior gastrojejunostomy of the no-loop or short-loop variety; and it has given absolute satisfaction. I employ a different procedure from the one invariably recommended and illustrated in the application of the forceps. Instead of having the blades and handles in apposition, I invert them. The blades are in apposition, but the handles are at diagonal opposites. Thus the assistant can control them better. It is not tiresome to hold them: and when he shifts his hands a little there is not the leverage that is found when the forceps are held by the handles.

Stenosis of the Respiratory Vestibule

DR. EMERY MARVEL, Atlantic City: I am convinced that vestibular abnormalities have been causal factors in producing many permanent cripples and a large number of premature deaths; and the same factors encourage the implantation of the contagious infections. The prevention of disease is the watchword of the day, and the elimination of adenoids and offending tonsils frees the victim from their mechanical handicap and removes their influence in the increased susceptibility to bacterial invasion. Complete extirpation, nothing less, is the remedy.

The Relation of the Public to and the Obligation of the Physician in the Spread of Communicable Disease

DR. PHILIP MARVEL, Atlantic City: The attitude of the general public is known to be strongly antagonistic to the establishment of prohibitory restrictions that insure protection against certain communicable diseases. The most important factors involved in promoting the influences that are responsible for this situation are the commercial interests, which too often disregard all the rights and privileges of others; the ignorance of the public concerning the cause and development of disease, and the laws of hygiene and sanitary science; and the indifference and jealousy of most of the profession, whose lack of a proper appreciation of the scope of the work or whose personal indifference to its source prevent them from a hearty cooperation with the prosecution of the great old propaganda. Once the public is sufficiently aroused to comprehend and appreciate its own interest in this great question, little will be required to assist us in the prosecution of this work. At no time in the history of civilization have there been so many proper and well-directed educational measures among professional state and national crafts for the uplifting of the people as exist to-day. Epidemiologic studies of the various communicable diseases have added to our knowledge of the spread of disease. It is my firm belief that these infections will continue with little variation until the public are properly awakened and educated in reference to individual protection.

DISCUSSION

DR. ALEXANDER MARCY, JR., Riverton: That there is indifference on the part of the people toward such measures is self-evident; but this indifference is due to ignorance, and one of the highest duties of the medical profession is to educate the public along these lines. That the national government owes something to the people in this respect, is conceded by all fair-minded people; therefore, the efforts that are being made to create a national department of health should have the hearty support of every medical man. The state and municipality also owe something to the people along these lines.

DR. W. BLAIR STEWART, Atlantic City: One should remember that the public can be led, but never driven. The local medical societies should devote less time to politics and more to studying conditions at home and the betterment of town and people. Local boards of health, usually composed of laymen, should cooperate with the medical profession. A little time and patience would soon create a better understanding and an improved attitude toward each other. More time and care should be devoted by teachers, physicians and nurses to the betterment of the condition of children in the public schools. The good influence of pure-food laws is now apparent. The Medical Society of New Jersey should exert her strongest influence in favor of the movement to establish a national bureau of health.

DR. THEODORE F. LEVINGOOD, Elizabeth: It would be well for the county societies, which come into most intimate touch with the individual physicians, who reach the people, to take up this work of prevention, and teach the people that they must have certain laws along this line enacted. When the people have once been instructed, the medical profession will have no further trouble. The people will send suitable men to the legislature and the whole problem will be solved.

DR. HENRY CHAVANNE, Salem: Conditions in cities at the present day are such as to call for the greatest condemnation. They are hot-beds of disease. It is our duty to see that the councilmen and legislators are men who will make good laws on this subject, and the executive officers men who will execute these laws.

Organization in Medicine

DR. WILLIAM H. WELCH, Baltimore, Md.: There is nothing more remarkable in the development of organized medicine in recent years than the growth of our state societies, due largely to the stimulus given by the improved organization of the American Medical Association. The very best thing that has come out of this plan of organization is the growth of the county society, which comes into closest contact with the individual physician. All our efforts should be directed toward strengthening the county societies. We do not represent any school of medicine, and we have no principles that we regard as universally applicable to the explanation or the treatment of disease. Anyone who attempts to practice the healing art should have some sort of knowledge of the healthy and the diseased body. So long as curative medicine is so far from being able to cure large numbers of diseases, the so-called healing cults will doubtless thrive.

Dr. Marvel has called attention to the fact that it requires cooperation of the public with the medical profession, in order to obtain important results in public hygiene. In this field of preventive medicine we have no rivals. Our profession is the only one that interests itself in preventive medicine. There is no school of preventive medicine.

Medical Expert Witness

DR. WILLIAM H. HICKS, Newark: Honest and conscientious effort to reach a true diagnosis in cases of alleged insanity is the rule and not the exception; and disagreement in some

cases is, in the present imperfect state of knowledge on the subject, inevitable under any system. Until the conflicting systems of psychology and the divers schools of psychiatry shall have been merged into a more uniform and a more exact science of the mind, it is folly to expect agreement in all cases of mental disorder. The alienist of courage and honesty will dare to do his duty in testifying to a condition of insanity; for society's protection against these homicides can be secured, not by executing the insane, but by practical, humane and scientific methods of prevention. Dangerous lunatics should not be allowed at large; but to suggest that a man be tried, convicted and sentenced, when he is incapable of preparing a defense or of understanding the nature of the legal proceedings, is monstrous and worthy of the dark ages.

DISCUSSION

DR. EDWARD J. ILL, Newark: The alienist has suffered most as the result of the severe criticism that the profession has received at the hands of the laity, and with right, for they are the ones that have sinned the most. The work of the alienist is the most difficult and the most unsatisfactory in the whole line of medical research, and this is just the reason that the alienist has been as a toy in the hands of the shrewd lawyer. The alienist who wishes to keep his name free from suspicion should refuse to testify as an expert so long as the present anomalous conditions exist. The state cannot demand that he jeopardize his good name. In these circumstances the court, the bar and the laity will soon come to their senses.

DR. EDWARD E. WORL, Newark: While the general practitioner does not know the processes and the degree of insanity, he does know when a man is insane; yet if he testifies regarding this point, he is immediately overwhelmed with some expert witness who has a high standing in nervous diseases. The determination of insanity is exceedingly difficult, unless one knows the previous life and peculiarities of the patient.

DR. CLAUDIUS R. P. FISHER, Bound Brook: In most of these cases, there is room for honest differences of opinion. It is the dishonest differences of opinion with which we find fault. I think, however, that it comes with a very bad grace from the legal profession to say that doctors never agree, when the Supreme Court of the United States, in case after case, hands down two different opinions.

DR. WALTER B. JOHNSON, Paterson: Any doctor who will study the side of the case of the lawyer who employs him, is apt to be honestly biased in favor of that side. While there often seems to the jury and laity to be a difference of opinion among medical experts, a careful analysis of these opinions by a board of physicians might bring out the fact that the opinions were very close together.

The Relation of Water to Malaria

DR. JOHN WALTERS, Wharton: Malaria prevailed in Wharton until 1880, when two mining companies drove a tunnel through the center of the town, in order to drain off what they termed the surface water. This suddenly drained all the wells and springs in the town, by taking the water for about 80 feet below the surface. In order to obtain water for domestic purposes, cisterns were now constructed; and within a short time malaria had almost entirely died out. It has not reappeared, although the mosquitoes in season are as vigorous as ever. The facts cited have convinced me that malaria is contracted by drinking water from springs and wells into which drainage from swamps and marshes carries the larvæ from the breeding places of mosquitoes, and not from the sting of the insect. In regard to treatment with quinin, this drug is easily dissolved in the normal stomach; but in malaria, the stomach frequently loses its acidity. Therefore, it is useless to give this drug, unless it is first rendered soluble and ready for absorption on entering the stomach. The most desirable way in which to do this is to add quinin to tincture of chlorid of iron. The iron dissolves the quinin and improves the depleted blood corpuscles, while the mixture acts directly on the poison, correcting the stomach, and abating the symptoms with surprising rapidity.

DISCUSSION

DR. FRANK J. KELLER, Paterson: I should like to hear some expression of opinion regarding the prevention of malaria by planting eucalyptus trees and other forms of vegetation inimical to the growth of the species of mosquito that propagates malaria. As to the method of introducing quinin into the stomach, I think that is merely a hobby.

DR. EDWARD B. ROGERS, Collingswood: The good results obtained by Dr. Walters were due to the fact that the tincture of iron contains a fair amount of hydrochloric acid. While the iron helps to overcome the anemia, any other form of it would give that result; but the hydrochloric acid helps to produce absorption.

DR. LINN EMERSON, Orange: The attacks of malaria that I witnessed in soldiers returning from the Spanish-American War made me feel that what I had seen before was not malaria at all. The men simply melted away, as they would in a profound infection with typhoid. The use of quinin by the ordinary method in these cases had no effect whatever; but when 30 grains of it were given at one dose, about an hour before the onset of the chill, together with 30 minims of dilute nitrohydrochloric acid, the dose completely stopped the chill.

THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

Fifty-seventh Annual Meeting, held at Wrightsville Beach, N. C., June 21-23, 1910

Under the Presidency of DR. EDWARD J. WOOD, Wilmington

A preliminary report of this meeting was published in THE JOURNAL, July 16, p. 227.

The Tonsil

DR. JOSEPH WHITE, Richmond, Va.: The tonsil is a physiologic part of the organism because it is always found in the fetus and in children under six or eight years of age, after which it gradually disappears by atrophy in from 85 to 90 per cent. of persons. In consequence it should be let alone at that time of life when it evidently has some function to perform, unless it shows evidences of disease or causes trouble. Occasionally at this period of life, and frequently in later years among those who do not lose the tonsil, it becomes a menace to the organism as a focus of infection, because of certain pathologic changes that present themselves.

That the operation of removal of tonsils is over-done many will admit, for there is no more reason for removing every tonsil than for removing every appendix. Unless diseased or giving trouble directly traceable to the tonsil, it should be let alone, especially under six or eight years of age. When the operation is clearly indicated, however, the best method of doing so is, logically, a radical removal in its capsule if practicable.

Fracture of the Astragalus, with Forward Dislocation of the Foot

DR. R. L. GIBBON, Charlotte, N. C.: I have seen two cases, occurring in substantially the same way—by a fall from the top of a freight car to the ground, the patient alighting on the feet. In the first case there was a dislocation of the astragalus forward, with a fracture of the body of the bone. This case was irreducible by ordinary means, and three weeks after the injury I operated and removed the loose fragment. The patient, some six months after the operation, has very good use of his limb. In the second case, which is quite recent, the *x*-ray showed a fracture of the astragalus through the anterior portion of the bone near its articulation with the scaphoid and cuboid, with a slight displacement of the fragment upward. This patient walks with a slight limp and suffers no pain, except when bearing his weight on his toes or in over-extension of the foot on the leg.

Cure of a Case of Actinomycosis

DR. JAMES M. PARROTT, Kinston, N. C.: This patient, a woman, had a negative history. In 1906 she developed a lump about the size of a walnut near the knee-joint. This lump

ultimately broke down and discharged a thick, odorless serum, in which floated innumerable pin-head yellow particles. Other lumps of the same character followed, which, on breaking down, or being opened, had the same character of discharge. There was no rise of temperature, so far as the patient was aware, at any time. There was no evidence that the patient had been exposed in any unusual way to cattle, horses, etc. Neither she nor her people owned any cattle, nor was there any "lumpy-jawed" stock in her vicinity, and she gave no history of contact with any person similarly affected.

On admission to the hospital the masses were extensively removed and the wounds were dressed antiseptically. The patient was discharged in September, 1907, apparently improved but not well. She returned at various times subsequent to this, when the ulcerations were curetted and every form of treatment and application was tried, in spite of which her leg gradually and persistently grew worse. Pure iodoform was used frequently.

Her family and her doctor were anxious to have the leg amputated, but this was not done, as her general health had not suffered particularly. January 26, 1910, the ulcers were curetted once more and packed with iodoform. A violent reaction followed, the temperature ranging as high as 105.5 F.; the skin became red and swollen, red streaks appeared on the leg, and in spite of the fact that the curetting was done in a most careful manner, we were reluctantly compelled to diagnose the condition as one of erysipelas. After running a severe course the infection subsided, and it was found that the condition of the leg was decidedly improved, and February 14, the actinomycosis was almost well, and when last seen on February 17, she was entirely cured.

Status of Hookworm Disease in North Carolina

DR. JOHN A. FERREL, Kenansville, N. C.: The factors favoring the prevalence of hook-worm disease are found in North Carolina. The climate affords the warmth and moisture necessary. In every section soil suited for the existence of the infecting larvae is found. It either holds the moisture near the surface, or is sufficiently porous to allow them to bury themselves deep enough to be beyond the drying action of the sun. Except where sewer systems are found no adequate provision is made to prevent soil pollution. The distribution of the disease is general. Reports from doctors indicate that approximately five thousand cases have already been treated. It is known to prevail in eighty-nine of the ninety-eight counties in the state. In the counties in which so far no cases have been found, no thorough investigations have been made. The examination of six hundred college students representing all sections of the state showed more than one-third of them infected in varying degrees with the disease. The percentage of infection is somewhat higher in the tidewater section than in the mountain section. The disease exists alike in the families of landlords and tenants, but among the latter is more prevalent and the symptoms more severe. "Ground-itch" is the usual manifestation of occurring infection. The barefooted age and the ten years following it or the fifth to twenty-fifth years show highest percentage of infection, the number of parasites reaching the maximum about the fourteenth or sixteenth year.

Intestinal Protozoa in North Carolina

DR. WILLIAM ALLAN, Charlotte, N. C.: Amebiasis is endemic and in 1908 caused more deaths than typhoid; as an indirect cause of death it ranks next to the hook-worm. In a series of 70 cases I have had 4 liver abscesses, and 50 per cent. of uncomplicated cases showed an eosinophilia of over 5 per cent. As amebæ and monads both produce alkaline stools, and as more cases of amebiasis are accompanied by monads than cases of monads by amebæ, it seems that the presence of these monads prepares the way for the implantation of the ameba. *Lamblia intestinalis* has recently been reported from North Carolina, and when *Balantidium coli* is reported, the state may claim as native all of the more important intestinal protozoa parasitic in man.

The Need of New Laws for the Prevention of Typhoid in North Carolina

DR. A. A. KENT, Lenoir, N. C.: Fully 85 per cent of all typhoid is preventable, and I suggest that the next legislature be asked to enact laws covering the following points: 1. That any attending physician, when a diagnosis of typhoid fever is made, shall make a careful sanitary inspection of the premises, including the adjacent premises where necessary, and that he have made a chemical and bacteriologic examination of the drinking water if it be from a well or spring, in order to find the original source of infection. 2. That printed rules of instruction shall be furnished by the State Board of Health to the county superintendent of health; and by the county superintendent of health to every licensed or registered doctor in the county; and that said rules be furnished by the attending physician to the householder and patient; that the attending physician shall be required to state in his monthly report to the county superintendent, whether or not he has used said printed instructions with his typhoid cases; and that the county superintendent in his monthly report to the secretary of the state board, shall state what doctors in his county, if any, fail to use said instructions. 3. That the state legislature shall appropriate one thousand dollars annually, or such sum as may be necessary, for the use of the State Board of Health, in order to meet the additional expenses of this work. 4. That said printed rules of instructions shall be a part of the state law, with a penalty on both physician and householder for any failure to carry out said instructions. 5. That said instructions shall direct: (a) How to find and abate the original focus of infection. (b) Compulsory screening of the patient, dining room and kitchen of the house against house flies. (c) Compulsory disinfection of all excreta, unused food, linen, etc., by the householder while the patient is confined and compulsory disinfection of dejecta by patient after out of bed until found free from bacilli—such examination to be provided for by law. (d) Compulsory abatement of breeding-place for flies, especially in towns. (e) Prevention of stream pollution with sewage from municipalities by the use of septic tanks. These rules of instruction—in fact, the entire law—should be so clear and plain that there could be no quibbling or speculation as to its meaning and intent.

The common practice of stream pollution by emptying the sewage of our towns and cities into small streams is a menace to the public health of the state. It is clearly the taking of the fundamental rights of one part of the citizens of a community for the benefit of another part. It is the right of every riparian land-owner to have the water of a stream flow to him undiminished and unchanged. It is more than probable that with the rapid growth of our towns and cities, the installation of modern water works and sewer systems, we are laying the foundation for widespread dissemination of typhoid fever throughout the country. If such be the case, it would be better for the state to enact laws requiring of the municipalities the building and manipulating of septic tanks for the treatment of sewage before disposal. This is the only scientific method, the only just method, and in the end it may be the most economic method. This is becoming a very serious question with the land-owners on many of our streams. It is a question that must be settled by our health authorities, and should be settled on broad lines, looking far into the future.

Gynecologic Operations in the Aged

DR. J. E. STOKES, Salisbury, N. C.: The term "aged" is arbitrarily applied to patients of 70 years of age or over. Five patients operated on by me made good recoveries after having refused operation for a number of years previously, on account of the fear of being too old. This is a frequent occurrence, so that statistics should be valuable in demonstrating to patients thus wavering, how groundless their fears may be relative to age alone in deciding against an indicated operation. The ages of the patients range from 70 years up to 86 years of age. The symptoms had been borne for more or less prolonged periods, in one case for over twenty years, even after a favorable prognosis for an operation had been offered

in the beginning. Major gynecologic operations in the aged present no essential differences from those operations in younger patients. The indications and contra-indications for operation are essentially the same.

Abuse of the Clinical Laboratory from the Standpoint of the Laboratory-Worker

DR. PAUL H. RINGER, Asheville, N. C.: The laboratory is for the reporting of facts and conditions—not, save in well-defined instances, for the making of diagnoses. Too many physicians wish the latter from laboratory examinations. Specimens are sent to the laboratory in insufficient quantity for satisfactory examination, and often so long a time is required in transit and such faulty methods of packing are resorted to that by the time the specimen reaches the laboratory, decomposition has set in and it is worthless. Many insist on too detailed an examination. Text-books on clinical pathology give such a multitude of substances that can be sought (in the urine for instance), and such an infinite number of tests, that the most practical element of the examination is lost sight of. Physicians do not supervise their own laboratory work sufficiently. They have the work done at a distance from home and thus lose, in a measure, the most important relationship between the laboratory findings and the clinical picture as manifested in the patient. Every physician for an outlay of from $5 to $10 can obtain laboratory equipment (exclusive of microscope) with which he can do ordinary uranalysis, stain sputum for tubercle bacilli and pus for gonococci, examine blood for malaria, stools for eggs of parasites, stomach contents for their various ingredients. None of these tests are difficult, and all that is required is practice. If the physician cannot do his own laboratory work he should have it done where he can be within call, so that any noteworthy finding can be properly interpreted. Interpretation is of as great importance as the proper technic of laboratory work. Faulty interpretation will almost invariably work harm. Above all, the physician should never forget that he is treating a human being, one in whom nothing is exact and nothing absolute, and should not allow the results of the laboratory examination to cloud or warp his judgment based on the clinical findings at the bedside. The laboratory is an aid and a very valuable one—in some cases its very verdict may be accepted as the court of last resort—but in the main it is simply an adjuvant, and will never take the place of careful bedside observation, study and examination.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

June 21

1 The Etiology and Treatment of the Psychoneuroses. J. J. Putnam, Boston.
2 *The Etiology of Actinomycosis: Experimental Production of Actinomycosis in Guinea-Pigs Inoculated with the Contents of Carious Teeth. F. T. Lord, Boston.
3 The Diagnosis of Stone in the Pelvic Portion of the Ureter. H. Cabot and W. J. Dodd, Boston.
4 Pregnancy, Nursing and the Care of Young Babies: An Experiment in Preventive Medicine. W. L. Putnam, Boston.
5 *Lesions of the Major Trunk Viscera in Epileptics. A. E. Taft, Palmer, Mass.
6 Suture of the Faucial Pillars for Hemorrhage Following Tonsillectomy. R. H. Gilpatrick, Boston.

2. **Etiology of Actinomycosis.**—Organisms having the morphology and staining reaction of actinomyces have been constantly found by Lord in smear preparations (11 cases) and in serial sections (5 cases) of the contents of carious teeth from individuals without actinomycosis. They are present in such numbers as to suggest that they play a fundamental part in dental caries. Following the intra-peritoneal inoculation of guinea-pigs with the contents of carious teeth, omental tumors, histologically identical with actinomycosis tissue and containing typical club-bearing actinomyces granules, have been produced in 3 (60 per cent.) of 5 animals. The constancy with which organisms having the morphology and staining reaction of actinomyces are present in carious teeth Lord believes suggests that under certain conditions persons with carious teeth are liable to develop actinomycosis. Lack of free drainage of a tooth cavity, whether arising spontaneously or as the result of filling an incompletely sterilized tooth, may be regarded as favorable to the production of the disease about the jaws or neck. In such cases the root canal of the tooth is the channel of infection. Organisms derived from the teeth may also be implanted in neighboring tissues or find lodgment in more remote parts of the body by way of the respiratory tract or the alimentary canal. Local injury of the tissue may be regarded as an important predisposing factor.

Although actinomycosis is doubtless more common than is generally believed, it cannot be regarded as of frequent occurrence. In explanation of its infrequency compared with the numberless chances for infection, it may be suggested that invasion of the tissues by actinomyces and associated bacteria does not always give rise to actinomycosis. In two negative inoculation experiments with the contents of carious teeth, organisms resembling actinomyces were present in smears from the extracted contents and it may be assumed that actinomyces were also present in the injected material, but failed to multiply in the body of the animal. Here, as in other infections, the varying numbers and vitality of the seed and fertility of the soil are of importance. It is probable that only in a small proportion of cases in which implantation of the organism occurs does it actually take root in the tissue and lead to progressive lesions, with club-bearing actinomyces granules.

5. **Lesions of Major Trunk Viscera in Epileptics.**—Taft examined, histologically, the viscera of 50 epileptics with a view to elucidating a possible etiologic relationship between these various conditions. The following summary of his findings is given without any comment:

Heart: 32 (64 per cent.) cases negative, 18 (36 per cent.) cases show lesions, 13 (26 per cent.) cases chronic fibrous myocarditis, 1 (2 per cent.) case multiple abscesses with pericarditis, 1 (2 per cent.) case endocarditis, 1 (2 per cent.) case brown atrophy, 1 (2 per cent.) case hypertrophy of muscle cells, 1 (2 per cent.) case acute fibrous pericarditis. (With one exception the subject was over 50 years of age.) *Lung:* 7 (14 per cent.) cases negative, 43 (86 per cent.) cases show lesions, 9 (18 per cent.) cases active tuberculosis, 5 (10 per cent.) cases healed tuberculosis or tuberculous lymph nodes, 21 (42 per cent.) cases acute pneumonia, 10 (20 per cent.) cases edema, 4 (8 per cent.) cases bronchiectatic abscess, 4 (8 per cent.) cases chronic bronchitis, chronic pleuritis, infarct and slight induration. *Spleen:* 2 (4 per cent.) cases negative, 48 (96 per cent.) cases show lesions, 3 (6 per cent.) cases tuberculosis, 62 (31 per cent.) cases hyaline arteries, 12 (24 per cent.) cases arteriosclerosis, 16 (32 per cent.) cases increase of trabecular tissue, 21 (42 per cent.) cases follicles inactive or only slight activity, 34 (68 per cent.) with varying degrees of congestion, 9 (18 per cent.) cases of small hemorrhages, 8 (16 per cent.) cases secondary acute splenitis, usually with acute pneumonia, 5 (10 per cent.) cases hyaline follicles, 4 (8 per cent.) cases phagocytic cells in follicles. *Pancreas:* 43 (86 per cent.) cases negative, 7 (14 per cent.) cases show lesions, 2 (4 per cent.) cases fat vacuolation, 3 (6 per cent.) cases chronic fibrous pancreatitis, 1 (2 per cent.) case interstitial hemorrhage, 1 (2 per cent.) case lymphoid infiltration. *Liver:* 4 (8 per cent.) cases negative, 46 (92 per cent.) cases show lesions, 1 (2 per cent.) case carcinoma, 20 (40 per cent.) cases fat vacuolation, 12 (24 per cent.) cases central necrosis, 4 (8 per cent.) cases focal necrosis, 26 (52 per cent.) cases central congestion, 10 (2? per cent.) cases diffuse congestion, 5 (10 per cent.) cases increase in periportal tissue, 4 (8 per cent.) cases lymphoid infiltration of periportal tissue, 1 (2 per cent.) case multiple abscesses, 1 (2 per cent.) case conglomerate tubercles. *Kidney:* 8 (16 per cent.) cases negative, 42 (84 per cent.) cases show lesions, 10 (20 per cent.) cases chronic interstitial nephritis, 17 (34 per cent.) cases chronic diffuse nephritis, 31 (62 per cent.) cases areteriosclerosis, 13 (26 per cent.) cases acute parenchymatous nephritis, 1 (2 per cent.) case multiple abscesses, 1 (2 per cent.) case tuberculosis.

Medical Record, New York

July 23

7 *The Ethical Aspects of Expert Testimony in Relation to the Plea of Insanity as a Defense to an Indictment for Crime. C. F. MacDonald, New York.
8 *The Anomalies of Ocular Dominance. G. M. Gould and A. C. Dorand, Ithaca.
9 The Noguchi Method of Serodiagnosis of Syphilis: Its Practical Value. D. M. O. Robinson, New York.
10 Deaf-mutism. E. W. Scripture, New York.
11 The Pathology of Joint Tuberculosis and Practical Deductions Therefrom. L. W. Ely, Denver.
12 Lupus—Its Treatment by the Roentgen Rays. C. L. Leonard, Philadelphia.
13 Obesity: Its Relation to Other Diseases and Its Significance. I. B. Kronenberg, Pittsburg.

7. Abstracted in Report of the New Jersey State Medical Society, this issue.

8. **Anomalies of Ocular Dominance.**—From histories obtained of perhaps 100 patients, the authors conclude that perhaps 3 per cent. of eyestrain sufferers are troubled with the disorders consequent on the anomalies of ocular dominance. Possibly 8 per cent. of little children are at first left-handed. Of these, in about 75 per cent., there has been a mistaken and harmful attempt on the part of the parents, teachers and school-fellows to make the child write, sew or hold a knife with the dextral hand. In the larger portion of this class the attempt has been harmfully, partially and awkwardly successful. In a smaller number of cases this, despite all punishment and suffering, has been unsuccessful, and the child has luckily remained normally left-handed.

Except in so far as it has influenced the primary shapes and sizes of the eyeballs, heredity has no influence in the production of right-handednes and left-handedness. Right-handedness and left-handedness arise in the first year or two of life, and are caused by the dominance respectively of the right or of the left eye. Dominance is dictated and established by the better vision of the right or of the left eye, in the great majority of cases, by the less incapacitating ametropia existing at the time of the beginning of the habits of willed arm-and-hand actions. In relatively 92 per cent. of infants the right eye is the better or easier seeing eye, and in 8 per cent. it is the left.

The attempt to change the establishing or established habit of left-handedness in a child inevitably produces disease of many kinds, awkwardness, liability to accidents, incapacities, and it handicaps in all the subsequent life. The difficulty and partial or complete unsuccess of the attempt shows that something far more than mere "handedness" or handiness, is at work to prevent. This something is the preceding and causal dominance of a single eye. Reversals of dominance in a relatively small number of individuals, as life goes on, are inevitable. A frequent cause of reversals of dominance is the changing of the errors of refraction during youth, so that the visual acuteness of the hitherto dominant eye becomes relatively so poor and unreliable that dominancy must be transferred to the other. These refractional changes account for most of the anomalies of dominance. Other agencies may affect the vision of the dominant eye and transfer its dominance to the other eye, such as diseases and injuries.

New York Medical Journal

July 23

14 The Bone Called "Luz." F. H. Garrison, Washington, D. C.
15 Clinical Value of the Serodiagnostic Methods in the Diagnosis of Syphilis. W. Litterer, Nashville.
16 The Noguchi Reaction in Serodiagnosis. W. M. Phelps, Washington, D. C.
17 *The Tuberculin Treatment of Pulmonary Tuberculosis in Office and Dispensary Practice. J. A. Miller, New York.
18* Vaccine Therapy in Tuberculosis. H. M. King, Loomis, N. Y.
19 The Lacrimal Duct as a Portal of Infection in Blennorrhea Neonatorum, and Its Prevention. W. L. Phillips, Buffalo.
20 The Status of the Blood-Pressure Observation in Life Insurance Examinations. F. A. Faught, Philadelphia.
21 The Manual Treatment of the Abdominal Sympathetic. E. F. Cyrian, London, England.

17. **Tuberculin in Tuberculosis.**—Out of 212 cases treated with tuberculin in office and dispensary practice by Miller, only 70 patients continued under treatment 90 days or more. In these the following results were obtained:

Apparently cured, 16, 22.8 per cent.; arrested, 20, 28.6 per cent.; improved, 16, 22.8 per cent.; progressive, 18, 25.7 per cent.

Present Condition: Well in active life, 28.40 per cent.; feel well, still under treatment, 13, 18.5 per cent.; total, 58.5 per cent.; not doing well, 6, 8.5 per cent.; dead, 10, 14.3 per cent.; untraced, 13, 18.5 per cent.

Stage of Disease: Incipient, 9, 12.8 per cent.; moderately advanced, 42, 60 per cent.; far advanced, 19, 27.2 per cent.; 87.2 per cent.

Duration of Treatment: Five months at least, 49; nine months at least, 15; twelve months at least, 6. Patients working while under treatment, 8.

Particular attention is called by Miller to the fact that although 87.2 per cent. were advanced or far-advanced cases, 51.4 per cent. were apparently cured or arrested. That eight patients worked regularly during the course of treatment, and that although these patients here reported have been treated over a period of five years, yet at the present time 58.5 per cent. are known to be well and 40 per cent. having finished their treatment, are now well and leading active lives.

18. **Vaccine Therapy in Tuberculosis.**—At the Loomis Sanatorium two classes of patients are advised to take tuberculin, viz.: 1. The class of incipient cases which have been under observation for a sufficiently long time to justify the belief that they are not progressive and are without fever or other evidences of a marked general toxemia; and 2, that class of more advanced cases, presenting evidence of "arrested" activity, the patients having been for some time without material change in their condition—either local or constitutional—but who still have cough and a bacillary sputum.

In a few instances King has given tuberculin, in extremely minute doses, in progressive febrile cases—more with a view of gratifying the whim of a very sick patient than with any expectation of success in treatment—and the results in such cases have always been negative. The one demonstrable and constant result of the suitable use of tuberculin, King says, is tuberculin immunity. Realizing that tuberculin immunity is not immunity to tuberculosis, he nevertheless has come to feel that something more is at the same time accomplished in most cases during a well-borne course of tuberculin, and that additional protection is afforded the patient against his disease—both in the form of present resistance and against future tendency to relapse. He endeavored for a long time to utilize the opsonic index as a guide to tuberculin administration, but abandoned the method when he became convinced that it was impracticable for this purpose.

Northwestern Lancet, Minneapolis

July 1

22 Chronic Inflammation of the Prostate. F. R. Wright, Minneapolis.
23 What Can We Do to Help in the Making and Enforcing of Sanitary Laws in Minnesota? E. H. Bayley, Lake City, Minn.
24 An Aid to the Proper Repair of Recent Lacerations of the Perineum. A. W. Abbott, Minneapolis.
25 The Problem of Tuberculosis. E. L. Tuohy, Duluth, Minn.

Virginia Medical Semi-Monthly, Richmond

July 8

26 An Appreciation of Louis Pasteur. H. Byrd, Jacksonville, Fla.
27 Some Phases of Endocarditis. A. G. Brown, Richmond.
28 An Attempt to Classify Our Knowledge of Suggestion. W. P. Carr, Washington.

American Journal of Surgery, New York

July

29 Local Anesthesia. A. E. Hertzler, Kansas City, Mo.
30 The Treatment of Bladder Tumors by the High Frequency Current. E. L. Keyes, New York.
31 Urinary Calculi—Casuistic Memoranda. W. M. Brickner, New York.
32 Surgery of Posterior Urethral and Prostatic Abscess and Their Resulting Fistulæ. B. M. Ricketts, Cincinnati.
33 Meatitis Erosiva Puerorum. H. Goldenberg, New York City.
34 The End Results of Prostatectomy. J. B. Squier, New York.
35 Combined Cauterization and Curetting as a Treatment of Chancroids. V. C. Pedersen, New York, and E. H. Marsh, Brooklyn.
36 Accidental Cauterization of the Male Urethra with a Concentrated Silver Nitrate Solution: Complete Recovery. A. L. Wolbarst, New York.
37 Apparently Cured Cases of Gonorrhea with Persistence of Gonococci. C. S. Stern, Hartford, Conn.
38 New Instruments for Throat Work. H. Hays, New York City.

Surgery, Gynecology and Obstetrics, Chicago

July

39 *Gall-Stones During Pregnancy and the Puerperium. R. Peterson, Ann Arbor.
40 The Employment of Vaccine Therapy in Gynecology and Obstetrics. J. W. Williams, E. B. Cragin and F. S. Newell, Baltimore.
41 *On Fibromyomata of the Uterus with Special Reference to Abdominal Hysterectomy. I. S. Stone, Washington, D. C.
42 *The Repair of Inaccessible Vesicovaginal Fistulæ Following Hysterectomy. G. G. Ward, New York.
43 *Bilateral Tubal Pregnancy. P. Findley, Omaha.

44 *The Surgical Treatment of Puerperal Sepsis. H. N. Vineberg, New York.
45 *Id. E. E. Montgomery, Philadelphia.
46 *When Shall We Operate in Pulmonary Septic Infection? J. O. Polak, Brooklyn.
47 *Three Unusual Cases. W. P. Manton, Detroit.
48 *What Are End Results of Surgery or Surgical Operations for the Relief of Neurasthenic Conditions Associated with Various Visceral Ptoses? J. A. Blake, New York.
49 Id. R. R. Smith, Grand Rapids, Mich.
50 Successful Reimplantation of Pelvic Kidney in the Female. D. Bissell, New York.
51 *Syphilitic Fever in Pregnancy and the Puerperium. F. J. Taussig, St. Louis.
52 *Right Pelvic Kidney, Absence of Left Kidney and Uterus; Both Ovaries in the Inguinal Canal. T. S. Cullen, Baltimore.
53 Carcinoma of the Right Fallopian Tube so Large that It was Readily Palpable Through the Abdomen. T. S. Cullen, Baltimore.
54 Colopexy. S. G. Gant, New York.
55 Technic of Hysterectomy Used in Clinics of Barton Cooke Hirst. E. E. Gelder, Peoria, Ill.
56 Radical Cure of Infiltrating Cystitis and Contracted Bladder. G. Kolischer and H. Kraus, Chicago.

39. Abstracted in THE JOURNAL, May 28, 1910, p. 1812.

41, 42, 44, 45, 46, 52. Abstracted in THE JOURNAL, June 11, 1910, pp. 1992, 1993, 1994.

43. Abstracted in THE JOURNAL, May 14, 1910, p. 1630.

47. Abstracted in THE JOURNAL, May 21, 1910, p. 1712.

48. **Relief of Neurasthenic Conditions.**—In recommending an abdominal operation to relieve neurasthenia, Blake says the following four conditions must be satisfied: 1. That there is a definite morbid or mechanical perversion of the normal condition of the viscera; 2, that it is the chief underlying cause of the neurasthenic state; 3, that the neurasthenic condition cannot be cured without its correction; 4, that it can be corrected by a definite operative procedure of only moderate danger to life.

51. **Syphilitic Fever in Pregnancy.**—Taussig reports a case of syphilitic fever occurring toward the end of pregnancy and persisting for some time after the delivery of the child. He says that the fever at the outburst of the syphilitic eruption is very different from the later syphilitic fever. The eruption fever lasts three to four days, is remittent in type, and does not usually rise over 10 to 103. With the drop in temperature the syphilitic rash appears. The striking effect of the hypodermic treatment of syphilis as against that of internal medication was illustrated in this case.

West Virginia Medical Journal, Wheeling

July

57 Brain Surgery—Report of Cases. F. L. Hupp, Wheeling.
58 Three Cases of Cranial Injury, with One of Subdural Cyst. R. H. Powell, Grafton.
59 Pellagra. J. R. Bloss, Huntington.
60 Vasectomy: Its Ethical and Sanitary Limitations. C. H. Preston, Davenport, Iowa.

California State Journal of Medicine, San Francisco

July

61 Surgery of the Lungs. A. S. Lobingier, Los Angeles.
62 Differential Pressure. D. Tait, San Francisco.
63 Methods of Differential Pressure. R. Russ, San Francisco.
64 The Future of Heart Surgery. H. M. Sherman, San Francisco.
65 Clinical Features of Hypophysis Disease. H. C. Moffitt, San Francisco.
66 A Plea for a State Institution for the Treatment of Chronic Alcoholics and Drug Habitués. R. E. Bering, San Francisco.
67 Prolonged Dilatation for Dysmenorrhea. G. B. Somers, San Francisco.
68 Ethical Versus the Commercial Side of Medical Practice—Which Will Serve? J. McMahon, San Jose.
69 Abdominal Injuries: Early Diagnosis and Treatment. R. T. Legge, McCloud.

Texas State Journal of Medicine, Fort Worth

July

70 General Observations on Cancer. B. Saunders, Fort Worth.
71 Information the Public Should Have Regarding Cancer. B. C. Eskridge, Houston.
72 Infant Feeding. L. B. Kline, Houston.
73 *An Unusual Case of Transposition of Viscera. M. P. Stone, Dallas.

73. **Transposition of Viscera.**—In this case there was an opening 2½ by 1½ inches in the diaphragm, a little to the left of the median line, which was found to be smooth and free from adhesions. A loop of small intestine measuring 42 inches was contained in the left pleural cavity. The entire stomach, omentum and transverse colon were also in the left pleural cavity. The colon pursued a diagonal course from the cecum to the left abnormal opening in the diaphragm, thence upward to the dome of the pleural cavity, descending in a curve to the left, outward and downward, and out through the same opening through which it entered. After entering the abdominal cavity again, it pursued its normal course. The esophagus passed out of the thorax through the same opening as the aorta, forming a sacculation 3 inches long by 2 inches wide, having very much the appearance of a second stomach. It then passed through the opening in the diaphragm into the cardiac end of the stomach. The stomach was enlarged, surrounded by adhesions, and embedded in the great omentum. The cardiac and pyloric ends were in close apposition, and situated just above the opening in the diaphragm. The left lung was very much flattened and was plastered against the pericardium and the vessels leading away from the aorta. The heart was entirely on the right side. The right lung was bound down in a mass of strong pleural adhesions, and its apex was riddled with cavities. The appendix was retrocecal, perforated and buried in adhesions. The liver was very much enlarged, and extended to the crest of the ilium. This case had been diagnosed pulmonary tuberculosis just prior to the death of the patient.

Albany Medical Annals

July

74 Faraday: His Life and His Work. W. G. Tucker, Albany.

Laryngoscope, St. Louis

July

75 The Isthmus of the Eustachian Tube: The Pathology and Treatment of the Middle Ear. S. Yankauer, New York.
76 Status Thymo-Lymphaticus and Its Relation to Sudden Death. G. H. Cocks, New York City.
77 Suppurative Ear Disease in Diabetes Mellitus. O. J. Stein, Chicago.
78 Severe Sepsis Following Tonsil Operations. L. W. Dean, Iowa City, Iowa.
79 Abscess of the Nasal Septum. G. F. Kelper, Lafayette, Ind.
80 A Forceps for the Control of Tonsillar Hemorrhage. S. Rosenheim, Baltimore.

Archives of Internal Medicine, Chicago

July

81 **Paramœba Hominis* an Intestinal Parasite of Man. C. F. Craig, Washington.
82 *The Quantitative Determination of the Chlorids in the Urine. S. C. Harvey, New Haven, Conn.
83 *The Bovine Type of Tuberculosis Associated with Tuberculosis in Man. M. Fabyan, Boston.
84 The Nitrogen and Sulphur Metabolism in Morbus Ceruleus. N. B. Foster, New York.
85 Adiposis and Lipomatosis. I. P. Lyon, Buffalo.

81. **Paramœba Hominis.**—Four years ago Craig described a new intestinal parasite of man, which, because of its life-history, was included in the genus paramœba, established by Schaudinn, naming the organism *Paramœba hominis*. The object of the present paper is to record further observations on this interesting parasite and to call attention to its probable occurrence in patients suffering from chronic diarrhea, in which the attacks alternate with periods of constipation, thus resembling quite closely the clinical picture of the form of dysentery due to the invasion of the intestine by *Entomeba histolytica*.

82. **Determination of Chlorids in Urine.**—In making a number of chlorid determinations in urine according to the original Volhard method, Harvey noticed that when only a small amount of nitric acid was used, the end point was indistinct and that it was difficult to obtain duplicates. On increasing the amount of acid used, however, the end point became sharp and two determinations on the same urine checked within the error of reading the burette. Moreover, on comparing these results with those obtained with the modified Volhard they were found to be identical. Based on these findings Harvey evolved a modification of Volhard's method which he now describes.

83. **Bovine Type of Tuberculosis in Man.**—The three cases cited by Fabyan illustrate different types of tuberculosis, all obscure as to diagnosis during life. In the first case—that of an adolescent—either the local tuberculosis may have had no immediate connection with the cause of death, or else the beginning of dissemination of the virus from the primary focus may have led to a reaction of the tuberculin type and to death. In the second case—that of an infant—the generalized tuberculosis starting from the mesenteric lymph-nodes

was evidently not suspected, for the clinical history states that within the last week of life the patient had an acute nephritis. Here also the liberation of tubercle toxins may have been responsible for the acute nephritis. In the third case—that of a child of 17 months—the symptoms pointed to the central nervous system and at one time a tentative diagnosis of anterior poliomyelitis was made. No similar cases have come under observation during this period. Fabyan says they may be considered three consecutive cases as studied in the laboratory, all due to the bovine type of tubercle bacillus.

Long Island Medical Journal, Brooklyn

July

86 The Long Island College Hospital: An Historical Sketch. J. M. Winfield, Brooklyn.
87 Hemorrhage from the Kidney: Its Recognition, Significance and Treatment. P. M. Pilcher, Brooklyn.
88 Indications for the Various Operations on the Gall-Bladder and Biliary Passages: Points in the Technic. W. C. Wood, Brooklyn.
89 Types of Movable Kidney. J. O. Polak, Brooklyn.
90 Intractable Hemorrhage of the Uterus. W. P. Pool, Brooklyn.

Cleveland Medical Journal

July

91 The Baby in the Tuberculous Home. R. A. Bolt, Cleveland.
92 Clinical Evidence of the Relation of Menstruation, Ovulation and Fertilization. A. H. Hill, Cleveland.
93 Relation Between Ovulation, Menstruation and Fertilization as Shown by Some Early Human Embryos. N. W. Ingalls, Cleveland.
94 The Relation of Menstruation, Ovulation and Pregnancy in Mammals. F. C. Waite, Cleveland.
95 The Profession of Nursing. C. L. Scudder, Boston.
96 Albuminuria of Adolescence. W. C. Stoner, Cleveland.
97 The Tonsils as Sources of General Infection. T. A. Burke, Cleveland.
98 Recent Advances in the Treatment of Pathologic Conditions of the Nose. W. B. Chamberlin, Cleveland.
99 Aerophagia, Causes and Treatment. M. Schott, Cleveland.
100 Chronic Cephalic Tetanus. A. N. Dawson, Cleveland.

Ohio State Medical Journal, Columbus

July

101 *Laboratory Diagnosis—Its Importance to the Practitioner. F. C. Wood, New York.
102 Chronic Pancreatitis. C. N. Smith, Toledo.
103 *Premature Baldness—Alopecia Seborrhoica, Pityroides, or Furfuracea—Its Symptomatic and Rational Treatment. M. L. Heidingsfeld, Cincinnati.
104 *Diagnosis and Treatment of Early Pulmonary Tuberculosis. J. P. DeWitt, Canton.
105 *New Method of Treating Uretero-cervical Fistula. E. M. Gilliam, Columbus.

101. Abstracted in THE JOURNAL, July 9, 1910, p. 154.

103. **Premature Baldness.**—Heidingsfeld says that animal experimentation and clinical experience reveal that premature baldness is not a specific infection. Heredity exercises, at most, a predisposing influence. It occurs chiefly in the opulent individuals who indulge in such over-attention as frequent and unnecessary shampooing, combing and brushing, massage and faradism, etc. It is an infrequent condition in the indigent poor and unkempt. It predominates greatly in private over dispensary practice. It is doubtless somewhat predisposed by causes which impair the general condition of the patient. It possesses a symptomatology consisting of four well-defined symptoms, namely, dandruff, excessively dry or excessively oily conditions of the scalp, itching and loss of hair. Treatment to be successful must be prophylactic, general and local in character. Local treatment should be symptomatic and carefully controlled to meet the special indications of the various manifest symptoms.

104. Abstracted in THE JOURNAL, July 16, 1910, p. 245.

105. **Uretero-Cervical Fistula.**—Following a supravaginal hysterectomy, a uretero-cervical fistula developed. The fistula, no doubt, was the result of forceps pressure on one of the ureters. An abdominal operation for the repair of the injured ureter was suggested, but refused by the patient. An attempt was then made to divert the flow of urine into the bladder by turning the cervix into that viscus. The vaginal wall was dissected from the bladder extensively on both sides through a median incision, and a crescentic incision made around the cervix. The cervix was denuded in its entire extent with the exception of the portion of the tip which projected into the bladder. A male catheter, armed with catgut, was then pushed up through the urethra and the bladder wall incised on the end of it, the opening in the bladder being sufficient to admit the cervix. Interrupted chromic gut sutures fastened the anterior surface of the cervix to the uppermost portion of the vesico-vaginal opening. A ligature through the posterior lip of the cervix was then caught in the loop of the catheter suture and drawn out through the urethra, pulling the cervix into the bladder. The edges of the incision in the vaginal and bladder walls were tacked to the posterior denuded surface of the cervix with chromic gut and silk-worm sutures. No leakage occurred on filling the bladder.

Journal of the Kansas Medical Society, Kansas City

July

106 *The Use of Tuberculin in the Diagnosis of Tuberculosis. M. A Barber, Rosedale.
107 Etiologic Factors in Children's Dysenteries. E. H. Schorer, Lawrence.
108 Non-Tuberculous Infection of the Kidney. C. C. Nesselrode, Kansas City.
109 Acute Endocarditis. E. L. Simonton, Wamego.

106. **Use of Tuberculin in Tuberculosis.**—The tuberculin tests, says Barber, are of decided value in those numerous cases in which the ordinary methods leave the physician in doubt. They present no technical difficulties insuperable for the careful practitioner. The positive von Pirquet in children, the negative in children and adults, the positive Calmette, the positive and negative subcutaneous and especially the positive subcutaneous with focal reaction have a greater value than the other tuberculin findings. No condition should be judged by the tuberculin test alone, but this should be taken only as one element in making up the diagnosis.

St. Paul Medical Journal

July

110 The Relational Pathology of Pneumonia. H. A. Tomlinson, St. Peter, Minn.
111 Mosquitoes of Minnesota. K. Taylor, St. Paul.
112 Estimation of Kidney Function. F. J. Savage, St. Paul.

United States Naval Medical Bulletin, Washington

July

113 Illumination of Study Rooms. A. L. Parsons and H. W. Smith, U. S. Navy.
114 The Surgical Aspect of Filariasis. C. F. Stokes, U. S. Navy.
115 Venereal Prophylaxis of the Asiatic Station. O. Diehl, U. S. Navy.
116 *Dried Blood Serum: A Substitute for Fresh Blood Serum in the Rapid Preparation of Löffler's Medium. E. W. Brown, U. S. Navy.
117 Need for a Pathologic Collection at the U. S. Naval Medical School. C. S. Butler, U. S. Navy.
118 Helminthologic Technic. P. E. Garrison, U. S. Navy.
119 Demonstration of Treponema Pallidum. F. M. Shook, U. S. Navy.
120 *"Unlearnable" Vision Test Card for Use in Naval Services. E. J. Grow, U. S. Navy.
121 A Suggested Bunk Tray. G. F. Freeman, U. S. Navy.

116. **Dried Blood Serum.**—Brown describes a method for the preparation of Löffler's blood serum medium on board ship, which could be used elsewhere quite as well. The success in the manufacture of the dried milk suggested to him that a similar process might be applied to blood serum, the serum being dried in toto, free from preservatives and at reasonable cost. Accordingly, several samples were forwarded prepared from fresh beef serum. These were sealed in small tin cans and were received on board the U. S. S. *Vermont*, Jan. 2, 1910. None was opened until the ship returned to Hampton Roads from Guantanamo, March 30, 1910. Blood serum slants were prepared from the material. A 12½ per cent. solution of the dried serum was made, this corresponding approximately to the proportion of solids in the original serum, the solution being readily effected by rubbing up with mortar and pestle. Glucose bouillon was added as in the ususal method, inspissation carried out at 70 C. for two hours, and sterilization effected in the dressing sterilizer at 8 pounds pressure for thirty minutes. The results were excellent and compared favorably with slants as ordinarily made from fresh serum. The coagulum was firm and free from bubbles. Inoculations were made from a pure culture of diphtheria bacillus and typical growths obtained.

The dried serum samples, opened after a period of nearly five months, were free from all signs of deterioration. A large number of tubes were prepared and again uniformly good results were yielded. Inoculations were then made directly from a large number of throats of diphtheria cases in the hospital. A control was made by inoculating tubes made from fresh serum and from the same clinical cases. The stained

preparations were equally typical in all cases, whether from the dried or fresh serum.

120. **"Unlearnable" Vision Test Card.**—In order to overcome the possibility of such previous familiarity with test cards as to enable the person tested to read the letters readily even when not actually visible, Grow has devised a method which is effective and at the same time exceedingly simple. The desirability of having a chart that eliminates the possibility of the candidate being able to learn the letters either intentionally or unconsciously is apparent. By the method generally in use the medical examiner is never certain whether the candidate has learned the letters or not, and his first suspicion may be aroused by receiving a letter from the bureau announcing the fact that so and so, whom he passed a month previously, has been surveyed and discharged from the service on account of defective vision, existing prior to enlistment.

The new chart proposed is constructed with a view to eliminating this constant source of error. The chart is made with the idea of securing uniform test letters (Snellen); adequate illumination and an "unlearnable" set of letters. The card bearing the letters is placed inside an illuminated box, and by means of a movable back, certain letters are made to appear at a horizontal and a vertical opening. The operator does not know the letters presenting until he observes them himself. The candidate under examination has no guide to assist him, and if he reads the letters presenting correctly he must see them. The numerous combinations of groups of letters which can be instantly thrown into view are too many for him to memorize, and although he may learn every letter on the card in their sequence, that knowledge would be valueless when the test is applied, for he reads only the letters which the operator throws into position and he cannot pronounce them unless he actually sees them, which is the object desired. In other words, the candidate can have possession of the chart, and any knowledge he can gain thereby will be of no assistance in aiding him to deceive as to his actual visual acuity.

Journal of the Medical Society of New Jersey, Orange

July

122 A Plea for a Higher Standard of Medical Education. B. A. Waddington, Salem.
123 The Broader Aspect of Medical Science. W. G. Thompson, New York.
124 Why and By Whom Should Surgery be Advised? J. B. Deaver, Philadelphia.
125 The Production and Use of Vaccine Virus. R. Slee, Nanuet, N. Y.
126 Rural Sanitation. P. P. Rafferty, Red Bank.
127 Abuse of Medical Charity. J. W. Reid, Kearny.
128 Hospital Nurses. D. Strock, Camden.

American Journal of Physiology, Boston

July

129 The Analysis of Edestin and Zein. T. B. Osborne and L. M. Liddle, New Haven, Conn.
130 The Sources of Loss in Analyzing the Products of Protein Hydrolysis. T. B. Osborne and D. B. Jones, New Haven, Conn.

Chicago Medical Recorder

June

131 Contemporary Workman's Compensation for Industrial Injuries. W. H. Allport, Chicago.
132 Some of the Characteristics of the Work of O. Henry. H. T. Byford, Chicago.
133 Postpartum Hemorrhage. D. A. Horovitz, Chicago.
134 The Necessity of Medical Inspection of Schools. S. E. Wright, Marinette, Wis.

July

135 Contemporary Workman's Compensation for Industrial Injuries (continued). W. H. Allport, Chicago.
136 *The Etiology of Zymotic Enteritis (Epidemic Diarrhea). R. Vincent, Westminster, Eng.
137 A Prostatic Brief. G. Kolischer and H. A. Kraus, Chicago.
138 Is Strychnin a Sedative? W. F. Waugh, Chicago.
139 Hypertrophy of the Heart. L. F. Bishop, New York.

136. **Zymotic Enteritis.**—Vincent maintains that the effective cause of zymotic enteritis is not the organisms which finally promote its production, but the methods by means of which the infant has been deprived of its natural safeguards against them. The fundamental characteristic of the natural food of the infant is that it is a raw fluid. In all circumstances the cooking of milk for the use of infants gravely impairs its nutritive value. With regard to zymotic enteritis, no serious amelioration in the mortality arising from this disease can be anticipated until the fullest protection of pure raw milk is secured for every infant, and special precautions must be taken, at times when heat and dust are prevalent, to secure that the milk for the use of infants shall be preserved fresh and unboiled.

American Journal of Public Hygiene, Boston

June

140 *A Method of Sealing Test Tubes to Prevent Evaporation of Culture Media. W. L. Beebe, St. Cloud.
141 *Age Problems in Industrial Hygiene. O. R. Lovejoy, New York.
142 Protection of Factory Employees Against Dust Arising from Certain Occupations. W. C. Hanson, Cambridge, Mass.
143 *Ventilation of Industrial Establishments. C. T. Rogers, New York City.
144 *The Sex Problems in Industrial Hygiene. F. Kelley, New York.
145 *Relation of Life Insurance to Public Hygiene. L. K. Frankel, New York.
146 *Physiologic Aspects of Ventilation. T. Hough, Charlotte, Va.
147 Incineration of City Wastes with Utilization. P. M. Hall, Minneapolis.
148 Disposal of City Wastes and Consideration of Nuisances in Edmonton, Alberta, Canada. T. H. Whitelaw, Edmonton, Canada.
149 The School Nurse as an Aid to Medical Inspection of Schools. G. L. Kiefer, Detroit.
150 The Control of a Large Milk Supply. W. A. Evans, Chicago.
151 The Relation of Public Water Supplies to General and Specific Mortalities. A. Lederer, Chicago.
152 The Need of Quantitative Methods in Epidemiologic Work. C. V. Chapin, Boston.
153 Period of Incubation of Inoculation Rabies. B. L. Arms, Boston.
154 Dry Air and Its Effect on Health. W. E. Watt, Chicago.
155 Boston and Chicago Death Rates. W. H. Davis, Boston.
156 Condensed Milk and Its Value for General Use and for Infant Feeding. J. P. Jordan and F. E. Mott, Boston.
157 Personal Hygiene. P. C. Stiles, Boston.
158 Veterinary Hygiene. W. L. Beebe, St. Cloud, Minn.
159 Sanitary Engineering. R. S. Weston, Boston.
160 Public Health Legislation. F. H. Slack, Boston.

140. **Method of Sealing Test-Tubes.**—In the method devised by Beebe a square piece of glass is covered with sealing wax and pressed down on the top of the tube while the tube is hot enough to melt the wax. In his experience the best results were obtained by the following procedure: The glass sealing-wax caps are easily made by cutting window glass into squares of from three-fourths to one inch. These are thoroughly cleaned and dipped into very hot sealing wax, thus covering them evenly. They are then dropped into a dish of cold water which cools the wax before they reach the bottom of the dish so they do not adhere to one another. Bacteriologic test-tubes which are thicker than the ordinary tubes should be used. It is desirable to use tubes without a lip because thin tubes are frequently broken in removing the cap. It is advantageous to have the top of the tube ground if the edge is uneven. The cotton plug should fit rather loosely, so that they can be flamed and pushed down just below the mouth of the tube. The tube is then heated sufficiently to melt the sealing wax where the rim of the tube comes in contact with the wax. The glass sealing-wax cap is firmly pressed down on the mouth of the tube and held in position for a few seconds and then placed in an upright position in a test-tube rack until they have cooled. Tubes that have been sealed by this method have been kept in his laboratory for over three years without evaporation. The caps are easily removed by tapping them on the underside with some instrument, such as a scalpel.

141, 143, 144, 145, 146. Abstracted in THE JOURNAL, Nov. 27, 1909, pp. 1845, 1846.

Illinois Medical Journal, Springfield

July

161 *The Future of Medicine. C. G. Stockton, Buffalo.
162 *Cancer. G. W. Crile, Cleveland.
163 The Non-Operative Treatment of Inguinal Hernia and the Hernia and Truss Questions. C. G. Buford, Chicago.
164 Severe Sepsis Following Tonsil Operations: Death from Sepsis Following Tonsillectomy. L. W. Dean, Iowa City.
165 Certified Milk. G. M. Whiteaker, Washington, D. C.
166 The Chicago Medical Society Milk Commission. J. W. VanDerslice, Chicago.
167 Certified Milk Commissions. O. P. Geier, Cincinnati.
168 The Pain of Gastric Ulcer. F. Ewing, Galesburg.

161. **The Future of Medicine.**—After reviewing the advances made in medicine and the various influences which have made very decided inroads on the physician's income, and which are becoming more potent forces in eliminating the unfit medical practitioner, Stockton asks: What should be the attitude of the profession toward this question? There has been a time when the profession has not stood for the good of the race. When individual members have lost sight of this fact they

have sloughed off from the proper body of the profession. It would seem to be a wiser plan deliberately to cooperate with the movement, to curb its rank and unintelligent exuberance where we may, to cement in a lasting foundation that which is undeniably good. To this end, it is necessary now, more than ever before, for the physician to interest himself in sociology as well as pathology, and thus to create for himself a larger place, more amplitude of vision, a wider interest and the means of subsistence. There must necessarily be a demand for special training, and it will probably be found that physicians shall have no less active occupation when they shall have adapted themselves to these new requirements of a contending civilization.

It is highly probable that the aroused public interest in the subject of medicine will result in a much more enlightened laity than was previously known. Many diseases may be prevented, or their oncoming foreseen, so that the physician will have more opportunity for treating the patient rather than the disease. The great question of heredity may eventually receive discriminating attention. But long before this it is probable that methods will be found more economical in suffering and expense than is at present true in the management of a large proportion of cripples and neurasthenics, of inebriates and others who now encumber society. But even though this tendency of the semi-public treatment of disease appears to be temporarily an obstruction to the profession, even though in some respects it is found to be inimical to professional interest and destructive to the welfare of the laity, it is sure in the course of events to right itself, leaving for physicians a residuum of good.

162. **Cancer.**—Based on the work of the experimentalist, the biologist, the internist and the surgeon, tested by a personal experience of over 600 operations for cancer in various parts of the body, Crile makes the following generalizations: Cancer occurs widely throughout the entire animal kingdom, in the herbivora and the carnivora, in birds and in fish, quite regardless of habit or mode of living. Its incidence and growth obeys the law of no known injection; its actual increase in frequency is still unproven; rare cases undergo spontaneous retrogression; in experimental cancers, at least, such regression is accompanied by an immunity; the immunity in sarcoma in dogs, at least, is in the blood and may be used to cure other cases in dogs; in man this principle has not yet been established; no curative power of any drug or serum has proven effective for human cancer. *X*-ray and radium may kill superficial cancer cells, but as agencies for cure they are unreliable. In cancers on the superficial parts of the body where observations may be accurately made, at least in most cancers, there is a pre-cancer stage, the most common form being chronic irritation, chronic ulcer, scar, wart, moles, benign tumors, keratosis, etc. Such cases should be decancerized. Preventable or curable cancer should not be watched, it should be prevented or cured.

Buffalo Medical Journal

July

169 The Progress of Medicine and Surgery. M. D. Mann, Buffalo.
170 Presentation of Genitourinary Specimens. J. H. Dowd, Buffalo.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

July 9

1 Subjects of Surgical Interest. H. F. Waterhouse.
2 *Modern Treatment of Fractures. F. N. G. Starr.
3 Accuracy in the Diagnosis of Urinary Disease. B. J. Ward.
4 *The Early Diagnosis and Treatment of Tuberculous Kidney. A. Fullerton.
5 *Suprapubic Drainage of the Bladder as an Alternative to Prostatectomy and as a Relief Operation. J. B. Pike.
6 The Incidence of Tuberculosis in Childhood. F. Hamburger.
7 The Prevention of Mortality from Pelvic Operations. H. Macnaughton-Jones.
8 The Presence of Sugar in Healthy Urine as a Source of the Osazone Reaction. F. W. Pavy and H. W. Bywaters.

2. **Modern Treatment of Fractures.**—The open treatment of fractures is recommended by Starr. He states briefly the advantages and disadvantages of this procedure.

4. **Tuberculous Kidney.**—Out of a recent series of 400 cases of all sorts of bladder and renal complaints requiring the use of the cystoscope for diagnosis, of which Fullerton says he has more or less extensive notes, 24, that is, 6 per cent., were cases of tuberculous kidney. In 13 of these the diagnosis was confirmed by operation, 9 patients having been operated on by Fullerton and 4 by other surgeons. In a few, other tuberculous foci were found in other parts of the body—for example, lymph nodes, epididymis, testicle, prostate, or lungs—but these associated lesions were entirely overshadowed by the renal or vesical condition. In the large majority the bladder was secondarily involved. Eleven cases occurred in the male sex and 13 in the female. The youngest patient was a boy aged 11 years. Another case was that of a girl aged 12 years. One was a boy aged 17, who had, in addition, signs of early phthisis at the apex of the right lung. Eight occurred between the ages of 20 and 30, 8 between the ages of 30 and 40, and three between the ages of 40 and 50.

In 8 cases Fullerton was able to elicit a distinct history of tubercle in the immediate relations. In all but one of the remainder a family history of all forms of tubercle was denied. In one case he failed to find any note on this point. In about 33 per cent., therefore, there was a distinct history of family tuberculosis.

In 11 cases the right kidney was affected; in 11 the left; in one both kidneys were obviously diseased, and in one, the second kidney was suspected. Tubercle bacilli in the urine were found in 11 cases. In some of the remainder the diagnosis seemed so obvious that the search was not persisted in.

In 9 cases Fullerton removed the affected kidney. One patient died six weeks after operation. One patient lived for a year, making an apparently good recovery for a while, but succumbed later from pulmonary phthisis. Another developed tuberculous epididymitis shortly after nephrectomy and Fullerton had to remove the affected epididymis with the testicle. He still has nodules in his prostate and is occasionally troubled with a small sinus over the position of the stump of the divided vas. In spite of this, he is now in excellent health, being 3½ stone (50 lbs.) heavier than he was at the time of his operation two and a half years ago. A patient whose vesical ulcers had disappeared when examined four months after nephrectomy, is still keeping well three years later. The others are so far doing well. In 4 cases the affected kidney was removed by other surgeons. Two of these are quite well more than 2 years after. A third is only a few months done. A fourth patient died a few days later.

This gives an operative mortality of about 15 per cent., but the patients dying after operation were operated on almost too late to expect a good result, so that one can, Fullerton thinks, look forward to a death-rate in early cases of not much more than that of gastro-enterostomy or appendicectomy, provided, of course, that the corresponding organ on the opposite side has been found to be efficient. Of the patients not operated on, one died four years after the onset of symptoms from epileptiform convulsions, two have been lost sight of, and the others are living in a more or less miserable condition, with the exception of one patient in whom an attempt at natural cure had taken place.

5. **Suprapubic Drainage of the Bladder as an Alternative to Prostatectomy.**—In some cases in which the removal, either of the growth or the organ seems hopeless, Pike believes that as a relief measure suprapubic drainage appears to have a valuable place.

Lancet, London

July 9

9 *The Cerebrospinal Fluid. F. W. Mott.
10 *The Behavior of the Leukocytes in Infection and Immunity. F. W. Andrewes.
11 Submucous Resection of the Nasal Septum. H. B. Tawse.
12 The Examination of Feces in Medical Practice. O. Kraus.

13 The Administration of the Public Health and Education Acts in Relation to the Prevention and Cure of Diseases of the Nose and Throat. T. J. Faulder.

9. **The Cerebrospinal Fluid.**—A rough method for the chemical examination of the cerebrospinal fluid is described by Mott as follows: Ten c.c. of the centrifuged fluid, after examination for cells has been made, are taken and rendered faintly acid with acetic acid; 3 c.c. of absolute alcohol are added and the whole gently heated on a water bath for 15 minutes. After standing overnight, it is again warmed and filtered. The amount of protein can be approximated at sight or weighed on a tarred filter-paper or Gooch crucible, the amount of ash being subtracted from the total weight of protein. The filtrate is rapidly evaporated to dryness at a low temperature, the residue is moistened, and a smear transferred on the end of a glass rod to a slide, and one drop of a saturated solution of iodin in 10 per cent. potassium iodid is added. The mixture is now watched under the microscope, when, if cholin is present, brownish-black rectangular plates of cholin periodid will be formed. The moisture is removed from the residue by evaporation, and another extraction with absolute alcohol is made. The filtered extract is evaporated to dryness and extracted with hot chloroform. The volume of chloroform is reduced to about 2 c.c., and the presence of cholesterol detected by Liebermann's test, which is thus carried out: Add to chloroform solution a few drops of acetic anhydrid, then add concentrated sulphuric acid drop by drop. After a time, a rose coloration of the acid, and a violet coloration of the chloroform turning to blue, then green, indicate the presence of cholesterol.

The test for sugar can be performed on one or more c.c. of the original fluid, and Noguchi's and other confirmatory tests may be made on any of the remaining fluid. Many observations have been made, based on the examination of fluids obtained after death. Mott has found, however, that within a very short time after death the composition of the fluid so alters that the results obtained are useless and misleading.

10. **Leucocytes in Infection and Immunity.**—Andrewes believes that in the case of infection with the pyogenic cocci the immune animal responds by a higher and a more ready increase in the circulating polynuclear leucocytes than the normal animal.

Practitioner, London

July

14 Malignant Endocarditis. J. Broadbent.
15 Treatment of Large Postoperative Ventral and Umbilical Hernia. H. J. Waring.
16 Internal Abdominal Injuries. W. H. Battle.
17 Hydrocephalus. L. G. Guthrie.
18 The Diagnosis of Intracranial Tumors. A. J. Hall.
19 The Case of Exostosis of the Os Calcis. H. French.
20 Acute Polioencephalitis. R. Miller.
21 Slight Opacities of the Lens. A. H. Thompson.
22 Pregnancy Complicated by Intestinal Obstruction and Appendicitis. J. E. Gemmell.
23 Bennett's Fracture. V. A. P. Costobadie.
24 *One Hundred and Thirty-three Cases of Hydramnios. E. Burstal.
25 The Safety of Immediate Appendicectomy in Suppurative Appendicitis. M. Mamourian.
26 Traumatic Cerebral Hemorrhage with Remarkably Late Onset of Symptoms: Operation; Recovery. G. H. Hanna, R. Coombe and W. Gordon.
27 *The Prescription-in-a-Nutshell System. F. S. Pitt-Taylor.

24. **Hydramnios.**—According to Burstal the percentage of women with hydramnios varied from .65 at Queen Charlotte's Hospital to 1.3 at York Road Lying-in Hospital. The total number of cases at the two hospitals was 133, out of which 6 were twin pregnancies. The sexes were distributed in a different way to what is usually given in the text books, 74 being males and only 61 females. Monsters and deformities were rare. Two were anencephalic, one was hydrocephalic with double hare-lip, spina bifida and talipes, and one had hare-lip and cleft palate, i. e., four deformities out of 139 children born. The effect of the excess of liquor on the second stage of labor was not marked, the average duration being about 1½ hours. The excess of liquor amnii seemed to predispose to postpartum hemorrhage, it being recorded in 19 cases.

The presentation was vertex in 122 patients, breech in 13, face in 2, and transverse in one. The excess of fluid does not seem to predispose to abnormal presentations.

The age of the mother cannot be considered a predisposing cause for hydramnios, the ages varying from 18 to 46, nor can the number of the pregnancy, as hydramnios occurred in pregnancies varying from the first to the fifteenth. In no single case was there a previous history of hydramnios. Albumen was present in the urine of the mother in 46 out of 112 recorded cases. With regard to the twin cases no definite statement can be made.

27. **Prescription-in-a-Nutshell System.**—Without going to the trouble of keeping any record in a book, the system described by Pitt-Taylor enables a record of the prescription to be written on the label of the bottle of medicine or other package dispensed. In order thus to record the prescription rapidly and secretly on the label, every bottle, jar or other package in the dispensary must be alphabetically lettered and numbered, and the letter and number of each ingredient of the prescription dispensed, followed, if necessary, by its quantity in the bottle, are then written down on its label. All the bottles, jars, and other packages, on the shelves are numbered in order, A, A1, A2, A3, A4, A5, A6, A7, A8, A9, B, B1 to B9, C1 to C9, and so on to Z9, commencing by numbering the bottle or jar on the extreme left hand side of the lowest shelf, and proceeding with the others, one after the other, on its right side straight round the dispensary until all those on the lowest shelf are numbered, and then continuing in the same manner with those on the shelf immediately above, and so on until all of them in the dispensary are numbered. A letter marks either the whole, or the first portion, of each ingredient's characters, and thus acts as a dividing point between the number which precede and succeed it; for instance, in $C_4D_1E_5$ the three components are clearly distinguished, whereas this distinction would not exist if the bottles were simply numbered numerically, as 243.246. It is not necessary to record the amount of each ingredient, or any at all of some of the prescriptions dispensed. Most physicians soon learn the usual amount of each drug they dispense and it only becomes necessary to indicate the amount when it varies either above or below this quantity. In these cases the amount of each ingredient to be recorded should be placed underneath a line drawn under the letter, or letter and number or numbers indicating it, so as to make, as it were, a fraction, and the words grain, minim, and ounce can be represented by using their first letters G, M, D, and O placed first; for instance, suppose the prescription contains 16 grains of potassium iodid, two drams of sodium salicylate, two drams of sodium bicarbonate, and an ounce of syrup of orange peel, and the dose is two tablespoonfuls three times a day, the ingredients alone are represented by writing, say $B_4C_6C_8H_5$, and the quantities as well by writing $\frac{B_4C_6C_8H_5}{G_{16}D_2D_2O_1}$.

In order to facilitate the working of this system, the label should be provided with a notice printed below the other instructions concerning the dose: "Please quote the letters and figures of the prescription number at future consultations, or return the bottle."

Journal of Laryngology, Rhinology and Otology, London

July

28 The Pathogeny of Cholesteatomata. V. W. Wingrave.
29 Congenital Insufficiency of the Palate (concluded). A. B. Kelly.

Glasgow Medical Journal

July

30 The Deaf Child from the Viewpoint of the Physician and of the Teacher. J. K. Love.
31 *Disease of the Cecum and Sigmoid which Simulated Affections of the Uterus and Adnexa. J. M. M. Kerr.
32 Arterial Spasm in the Brain Associated with Transient and Permanent Paralysis. G. A. Allen and G. H. Wilson.
33 *Congenital Enchondroma of the Right Hand. A. J. Hutton.

31. **Disease of the Cecum and Sigmoid.**—The cases reported by Kerr may be summarized as follows: 1. Carcinoma of the

sigmoid which simulated an ovarian tumor; removal of sigmoid and rectum by combined abdominal and perineal operation, recovery. 2. Advanced malignant disease of rectum which resembled fibromyoma of uterus—colotomy—recovery. 3. Cyst of left ovary with carcinoma of sigmoid, which at first presented features of extrauterine pregnancy—removal of ovarian cyst, subsequent resection of bowel, recovery. 4. Tuberculous disease of cecum which simulated an ovarian tumor—lateral anastomosis, ten days later removal of cecum, recovery. 5. Chronic inflammation of appendix and cecum simulating a fibromyoma of the uterus—removal of cecum—recovery.

33. **Congenital Enchondroma of Right Hand.**—The patient, aged 23, whose grandfather had a similar deformity, presented large, irregular firm swellings on all the phalanges and metacarpal bones, with here and there soft areas over which superficial ulceration had occurred. The fingers were mere knobs projecting from the surface of the tumor, and the hand was quite useless. The largest swelling was as great as a big apple, and was situated on the metacarpal of the "ring" finger. On pathologic examination, the tumors showed the ordinary appearances of chondroma with calcified and osseous areas.

Bristol Medico-Chirurgical Journal

June

34 The Development of the Human Skull. E. Fawcett.
35 Biliary and Intestinal Sand. G. Parker.
36 A Case of Oxycephaly. G. H. Almond.
37 Iodoform and Thyroidism. A. R. Short.
38 *A Case in Which a Stone Formed in the Urethra Around a Piece of Wood Introduced into the Urethra Twenty-six Years Before the Removal of the Stone. C. A. Morton.
39 Bromoform Poisoning. R. Waterhouse.

38. **Stone in the Urethra.**—Twenty-six years before this man, aged 48, was seen by Morton, he had had retention of the urine, and in order to relieve himself he passed a kind of a bougie which he made of wood. The end of this broke off in his urethra, but did relieve the retention. The broken-off end of the wooden bougie, however, remained in the urethra. He had had difficulty with micturition at times since, and had kept in the house a No. 4 metal catheter, which he passed when the difficulty was marked. In doing so, he struck the piece of wood. He really struck the stone, but knowing nothing about stones in the urethra, he imagined it to be the piece of wood. A few weeks before Morton saw him a sinus formed in the perineum and an abscess was opened. There was a large mass of induration in the perineum, more to the right than the left. Morton removed the stone. The mass of induration was very largely due to the size of the stone. It lay in a pouched urethra, distinctly more to one side of the middle line than the other. On cutting open the stone a piece of wood was discovered as its nucleus.

Annales de l'Institut Pasteur, Paris

May, XXIV, No. 5, pp. 337-432

40 Study of Epidemic of Relapsing Fever in Algiers. (Recherches sur la fièvre recurrente et son mode de transmission.) E. Sergent and H. Foley.
41 *Epidemic of Malta Fever in France. (Epidémie de fièvre de Malta dans le departement du Gard.) P. Aubert, P. Cantaloube and E. Thibault.
42 Theoretical and Practical Study of Cheese Making. (Technique fromagère.) P. Maze.
43 *Report of Paris Pasteur Institute for 1909. J. Viala.

41. **Malta Fever in France.**—An epidemic of what was called infectious grip affected 106 of the 630 inhabitants of a farming district in southern France, and 40 died, while others were bedridden for several months. Investigation revealed that the epidemic was typical Malta fever, which has been known in France for some years, probably the result of importation of goats from Sicily. The epidemic had been preceded by an epizootic among goats, the disturbance manifested chiefly by numerous abortions among them. Goat's milk is used exclusively throughout the district. Sheep were also found infected but not in such numbers as the goats, and their milk was not used raw but made into cheese or left for the lambs. It has been suggested that cheese might transmit the infection and research in this line is now under way. Rabbits proved susceptible to experimental Malta fever infection. If it is found that these animals eliminate the microbe in the same way as the goats—in the urine—rabbits might prove an important agent in the transmission of the disease as they multiply with such rapidity and are sold in every market in France. The authors insist that Malta fever should be added to the list of notifiable diseases; that the introduction of goats into the country should be strictly supervised and that the goats already there should be kept under control and people warned against taking raw goat milk or cheese. They add that search for Malta fever and separate classification of the cases, will, they are confident, reduce the number of supposed cases of typhoid in the cities of southern France.

43. **Treatment of Hydrophobia at the Paris Pasteur Institute.**—The number of cases has constantly diminished, from 2,671 in 1886 to 467 in 1909, and the mortality among the patients taking treatment from 0.94 to 0.21 per cent. The only death in 1909 during the course of treatment was an English sailor bitten at Gibraltar and not applying for treatment until after a delay of 12 days. A comrade bitten on the same day and coming with him, developed symptoms of rabies 6 months after the course of treatment; and he died in 3 days.

Annales de Médecine et Chirurgie Infantiles, Paris

June 15, XIV, No. 12, pp. 381-468

44 *Morbid Associations. V. Hutinel.
45 Recurring Chorea. H. Triboulet and C. Périneau.
46 The Phenolphthalein Test in Nephritis. (Valeur séméiologique de la réaction de Meyer dans les néphrites.) G. Paisseau and L. Tixier, H. Triboulet and C. Périneau.
47 Gymnastic Exercises in Treatment of Curvature of the Spine. (De la gymnastique dans le traitement des déviations du rachis.) P. Redard.

44. **Morbid Associations.**—Hutinel discusses the way in which two concomitant diseases modify each other, generally aggravating each other and preventing the natural development of immunity in consequence. He describes a number of cases of the kind, typhoid with tuberculous pleurisy, scarlet fever and pneumonia, pneumonia and typhoid, typhoid and measles, typhoid and whooping-cough, and mucomembranous enteritis and typhoid. In one case measles coming on during the latter stages of typhoid induced a relapse of the typhoid, and recurrence of scarlet fever during convalescence from both scarlet fever and pneumonia was observed in another case. The typical course of the various diseases was materially modified by the coincidence of the two infections. In a case of typhoid coming on during whooping-cough the symptoms of the latter subsided with the onset of typhoid symptoms but returned again for two weeks after defervescence from the typhoid; this was followed by recurrence of the typhoid for 12 days, when the fever subsided and again the whooping cough symptoms reappeared. The spasms of coughing were more violent than ever for 10 days when again the temperature arose and typhoid symptoms returned, followed again by whooping-cough symptoms as the fever subsided again. He declares that this alternation of relapses of both diseases showed how each had prevented the natural process of immunity in the other, and warns that the reaction to the tuberculin tests may be deceptively modified by a coincident infectious disease, possibly latent. He refers also to some cases of children with an inherited syphilitic taint, hitherto latent, but roused to serious manifestations by an intercurrent typhoid.

Lyon Chirurgical, Lyons

July, IV, No. 1, pp. 1-102

48 *Intermittent Hydrops of the Gall-Bladder. (Quelques nouveaux cas d'hydropisie intermittente de la vésicule.) E. Villard and G. Cotte.
49 Radium Treatment of Cicatricial Stenosis of the Throat. M. Cantas.
50 Mistaken Diagnosis of Tuberculous Peritonitis. (Trois observations rares de chirurgie abdominale.) L. Desgouttes.
51 Incision and Resection of the Auditory Canal and of the Concha after the Petromastoid Operation. (Incisions et résection du conduit auditif et de la conque après l'évidement pétromastoidien.) Lannois and Jacod.

48. **Intermittent Dropsy of the Gall-Bladder.**—Villard and Cotte report a case in which an intermittent accumulation of serous fluid in the gall-bladder was diagnosed as hydronephro-

sis and a lumbar incision made through which the gall-bladder was removed. In a second case the same mistake was made but the incision was sutured without cholecystectomy and the patient refuses any further operation, not having had any further attacks. Even catheterization of the ureters will not always clear up the diagnosis in these cases; an exploratory incision is generally necessary. In a third case the absence of a liver or gall-stone history, the recurring pain in the lumbar region and catheterization findings all suggested intermittent hydronephrosis, but nephrotomy revealed that the gall-bladder alone was at fault. In all these cases the trouble was due to obstruction by unsuspected gall-stones. Tanarky has recently reported a case of intermittent hydrops of the gall-bladder from a combination of gall-stones and cancer. Still another cause for the intermittent dropsy of the gall-bladder was evident in another case reported in detail by Villard and Cotte; besides calculi, stricture of the common bile duct or kinking of the cystic duct, retention of the contents of the gall-bladder may result from the extremely viscous character of its contents. The mucus is too thick and heavy to flow off normally through the outlet. This hypersecretion they ascribe to some infectious process and this assumption is confirmed by the benefit from prolonged drainage with modifying local injections. The drain was taken out too early in the case reported and the infectious process flared up a little again, but finally subsided entirely after drainage had been resumed for three months longer. By this time the secretions were normally fluid and there was no further pain. This patient had complained of recurring attacks of pain in the stomach and subhepatic regions, coming on a few hours after eating, generally in the afternoon. During the last five years the attacks had been more severe, compelling recumbency for several days afterward, but there was never any fever or jaundice although the patient was growing thin. The gall-bladder was found distended and painful, with intermittent tension under palpation. The walls of the gall-bladder gave evidence of repeated attacks of inflammation but there were no adhesions and all the symptoms subsided as soon as the organ had been evacuated. The patients in the cases were all women, the age ranging from 35 to 52.

Presse Médicale, Paris

June 29, XVIII, No. 52, pp. 489-496

52 *Transplantation of the Kidney. (La transplantation du rein.) E. Villard and L. Tavernier.

July 2, No. 53, pp. 497-512

53 *Serotherapy and Anaphylaxis in Cerebrospinal Meningitis. V. Hutinel.
54 *Quinin and Urea Bichlorid in Local Anesthesia. (Le chlorhydrate double de quinine et d'urée.) M. Gaudier.
55 Wassermann Reaction in 200 Cases. C. Garin and C. Laurent.
56 Institutions and Organizations for Protection of Mothers and Infants. (Les œuvres de protection de la mère et des enfants du premier age dans le departement de la Seine.) M. G. Schreiber.
57 *Idiopathic Contracture and Spasms of the Stomach. (La chorée de l'estomac.) G. Leven and G. Barret.

52. **Transplantation of Kidneys.**—Villard and Tavernier report experiences with seven dogs or goats in which they transplanted one of the animal's own kidneys or the kidneys from another animal. The autotransplantation gave durable results, while homotransplantation allowed the survival of the implanted kidney and its apparently normal functioning but whether the effect will be permanent is still a question. Transplantation of a kidney from another species of animals has not given satisfactory results to date. They did not find it necessary to rinse the excised kidney before implanting it, finding that clamping the arteries and veins was sufficient to prevent clotting of the blood in them, so that this perfusion is not necessary. The ureter, they state, should be implanted in the bladder, not in an external mouth. In the choice of an artery to connect with the implanted kidney, the splenic offers a number of superior advantages, especially the accessibility, size and functional adaptability.

53. **Fatal Anaphylaxis in Serotherapy of Cerebrospinal Meningitis.**—Hutinel has had 2 cases and knows of 2 others, still unpublished, in which antimeningococcus serum was given 3, 5 and 44 days after the first injections, and serious nervous symptoms developed at once, proving rapidly fatal. The patients were children between 3 and 6, and the injections had all been made into the spine; from 25 to 30 c.c. of the serum had been injected each time. He discusses the theories in regard to anaphylaxis and the reason why the toxic phenomena do not occur unless an interval of a few days has elapsed before the resumption of the injections, and the fact that these phenomena are more liable when the fluid is injected near the central nervous system. Ether and alcohol seem to confer a briefly transient immunity against anaphylaxis, and he adds that it is a popular notion in northern France that ingestion of a small amount of ether will cure the symptoms observed in certain persons after eating poisonous mussels. The symptoms induced by this mussel poisoning are very much like those of anaphylaxis and he suggests that the antianaphylactic properties of ether might be used in treatment of serious disturbances following injection of antimeningococcus serum. Besredka advocates rendering cattle immune to anaphylactic disturbances in seroprophylaxis by vaccinating them with the serum just beforehand. This method has recently been applied in Roumania on a large scale, Alexandrescu having used in vaccinating cattle against anthrax a mixture of antianthrax vaccine and serum. The animals are vaccinated against anthrax regularly once a year, at least, and oftener in case of epizootics. Ninety out of 180 animals thus treated were given a subcutaneous injection of 1 c.c. of the antianthrax serum five hours before the vaccinating mixture was injected, and none of these animals showed any trace of anaphylaxis while 10 per cent. of the 90 other animals not receiving the preliminary injection developed symptoms indicating anaphylaxis. Another prophylactic measure Hutinel suggests is to make the succeeding injections with a serum derived from another animal, a sheep, for instance, if horse serum had been used at first. In 2 of the cases Hutinel reports there was concomitant tuberculous infection which, he remarks, may have aided in inducing the anaphylactic phenomena or at least in conferring greater gravity on them.

54. **Local Anesthesia with Quinin and Urea Hydrochlorid.**—Gaudier's experience confirms that of Thibault, Hertzler and others as published in THE JOURNAL in the last three years. (See the issue of Oct. 23, 1909, page 1393.) He performed with this method of local anesthesia numerous operations on the nose, superficial tumors and other lesions in mucous membranes. It was his experience that this method of anesthesia did not prevent local hemorrhage and that the oozing recommenced at the slightest excuse when the dressings were changed. The anesthesia induced is more strictly localized than with cocain and lasts longer; he was able to renew the compressing dressings five hours later without pain. The reduction of sensibility persisted on an average fully three days. This property, he adds, may commend this method particularly for treatment of fractures. Cicatrization, however, seemed to him to be a little retarded, the wound not healing quite as quickly as with cocain. The anesthesia induced does not develop as rapidly as cocain anesthesia, and is not quite so profound, but it lasts much longer. The absence of vasoconstriction may interfere a little with the operation, but addition of the active principle of the suprarenal gland may obviate this although it was his impression that the latter in combination with the quinin had a less intense vasoconstricting action than alone.

57. **Chorea of the Stomach.**—Leven and Barret report three typical cases out of their much larger experience to sustain their assumption that the stomach may be affected with what they call actual chorea; that is a tendency to spasms and contracture of the musculature and sphincters, this motor restlessness entailing symptoms which prove rebellious to all ordinary methods of treatment. Skiagrams of the same stomach taken at a few moments interval, show the remarkable changes in the shadow as the stomach curves up on itself, straightens out or undulates in waves. The first patient had been treated for 10 years without benefit, his frequently recurring attacks of gastric pain, vomiting and exhaustion of the stomach having been diagnosed as gall-stone trouble, gastric crises, etc. But he was soon speedily cured by treatment directed to resting and soothing the stomach, bed rest for 4 to 8 days, with moist heat to the stomach, no food beyond

a small cup of milk every three hours from 7 a. m. to 7 p. m. for 3 to 5 days, then avoiding meat, bread and all indigestible food for two weeks, interposing one "milk day" every 4 days. These measures are supplemented every 2 hours during the first week by a dessertspoonful of a mixture of 5 parts bismuth and 15 parts acacia in 150 parts distilled water. This patient was also given 3 gm. of sodium bromid a day to act more directly still on the hyperesthesia of the gastric mucosa. The affection in the second patient had been differentiated as stenosis of the pylorus with ulcer and he had been kept for five years on an exclusive milk diet, but without relief. During the last 18 months spasm of the cardia had still further complicated the case, and the patient was unable to eat any solid food without severe pain, which continued until the food had been vomited. Radioscopy revealed spasmodic contraction of the cardia and pylorus and aerophagia, but no stenosis. Treatment as outlined above cured the patient in a few days and the cure has been complete for over 2 years to date in both cases. The tendency to aerophagia was also treated at the same time. The third patient was being treated for stenosis of the pylorus, vomiting and pain after eating, and he was placed behind the screen for a radioscopic examination but for some reason the apparatus did not work. The patient however did not know this, but he was absolutely cured by the supposed radioscopy; there has been no recurrence of symptoms for over 10 months to date. These patients were all men, the first two were about 50 years old, and the cases are cited to sustain the assumption that gastric spasm and contracture may occur without an organic lesion; in all the symptomatology had been grave, of long standing and rebellious to treatment by experts, but yielded to suggestion or to simple sedative treatment. An organic lesion is incompatible with the rapid and permanent cure while radioscopy has confirmed the actual chorea of the stomach. Physicians familiar with this syndrome of chorea of the stomach, they remark, will not let their patients be operated on for supposed stenosis or cancer, which the syndrome may most deceptively simulate. The trouble can be cured without; when a cure has been realized in such cases by operative intervention, the benefit is the result of the rest enforced by the operation, the dietetic restrictions and the fact that a moral, accidental or surgical traumatism may usefully modify a neurosis. The trouble in these cases is evidently a motor and sensory neurosis of the stomach. A single instantaneous skiagram might give very misleading findings, but if the stomach is patiently examined with the screen its motor restlessness will soon reveal itself and explain the puzzling shadows.

Semaine Médicale, Paris

July 6, XXX, No. 27, pp. 313-324

58 *Complications of Rubeola. C. D. Martelli.

58. **Complications of Rubeola.**—Martelli observed pneumonia in the course of rubeola, evidently a complication of the latter, in 3 cases in a recent epidemic in Italy. In one case the pneumonia ran a protracted course and vigorous tonic medication was required afterward before the child was well again. In 6 other cases he noted slight albuminuria and tube-casts in the course of the rubeola. In another case there was slight hematuria for ten days after defervescence, with a slight tendency to albuminuria but nothing else to suggest possible nephritis. Hematuria was encountered in only 1 of his 46 cases of rubeola, but he refers to Banbace's report of an epidemic of rubeola in which hematuria was the rule.

Archiv für Gynaekologie, Berlin

XCI, No. 1, pp. 1-242. Last indexed June 4, p. 1909

59 *Tubal Sterilization of Women. (Ueber die tubare Sterilisation der Frau.) H. Offergeld.
60 The Albuminoids in the Urine in Parturients. (Eiweisskörper des Harnes bei Gebärenden und Wöchnerinnen.) B. H. Jagerroos.
61 Reabsorption of Bone in the Intrauterine Disappearance of the Fetus. (Knochenresorption bei intrauterinem Eischwund.) F. Koebner.
62 The Behavior of the Diastatic and Antitryptic Ferments in Pregnancy. (Verhalten des diastatischen und antitryptischen Ferments in der Schwangerschaft.) H. Schirokauer.
63 Ovarian Endothelioma. (Zum Studium der Eierstocksendotheliome.) P. Liagbue.
64 *Oliguria and Chronic Uremia with Uterine Carcinoma. H. Offergeld.
65 Experimental Transplantation of Ovary Tissue. S. Higuchi.

59. **Tubal Sterilization.**—Offergeld discusses the indications, technic and medicolegal aspect of tubal sterilization and the results of his own experience. It has sometimes happened that women suffered from prolonged uterine hemorrhage coming on some time after the operation on the tubes. There is no hemorrhage at the time, but about four days later there is what seems to be an ordinary menstrual hemorrhage, only it lasts for a week or more. He thinks that the removal of the tubes has some unexplained influence on the endometrium; this is evidenced particularly by success of ergot in arresting the hemorrhage and preventing any excess at the following menses.

64. **Oliguria and Chronic Uremia in Cancer Patients.**—Offergeld presents evidence which sustains the assumption that cancer patients suffer from chronic uremia more than is generally recognized, the products of the cancer injuring the kidneys indirectly or the cancer compressing them or their outlets. He then describes in detail 4 cases in which he tried to remedy matters by administration of beef kidney extract or in substance but with constantly negative result or possibly an aggravation of symptoms. He adds in a footnote that the results were also negative in a case of pregnancy eclampsia with advanced interstitial nephritis. The organotherapy gave no relief when applied as a last resort, the patient dying 20 hours after the onset of the first symptoms, promptly followed by induction of abortion. The evils of chronic uremia with inoperable cancer possibly may be palliated, he adds, by nephrostomy, ureterostomy or ureterocystoneostomosis. Or it may be possible to supply the lacking internal functional products of the kidney by extract from healthy human kidneys. The attempts to date to accomplish this with organotherapy with products derived from animals of another species have not given promising results.

Archiv für klinische Chirurgie, Berlin

XCII, No. 2, pp. 265-595

66 *Experimental and Critical Study of Ligation of Mesentery with and without Plastic Use of the Omentum. (Mesenterialunterbindung mit und ohne Netzplastik.) H. v. Haberer.
67 Advantages of Early Operation in Appendicitis. (Wodurch setzen wir die Mortalität der Appendicitis herab und verhüten Abscesse und Peritonitiden.) H. Kümmell.
68 Excellent Outcome of Osteotomy of the Os Calcis for Flat-Foot in 37 Cases. (Erfolge der Operation des Plattfusses nach der Methode von Gleich-Brenner.) H. Riedl.
69 *Results of Histologic and Chemical Research in 160 Cases of Exophthalmic Goiter. (Untersuchungen von 160 Basedowfällen.) A. Kocher.
70 *Treatment of Pseudarthrosis and Extensive Gaps in the Long Bones. (Behandlung der Pseudarthrosen und der ausgedehnten diaphysären Continuitätstrennungen.) A. Codivilla.
71 *Operations on the Spleen in Malaria. (Ueber Operation an der Malariamilz.) S. Solieri.
72 *Operative Treatment in 20 Cases of Traumatic Epilepsy. O. Tilmann.
73 *Physiologically Correct Abdominal Incisions. (Kritische Betrachtungen über Bauchdeckennaht und Bauchschnitt.) O. Sprengel.

66. **Ligation of Mesentery.**—The extensive experimental research reported by v. Haberer shows that the terminals of the mesenteric arteries have such a different arrangement in man and dogs that conclusions drawn from the latter cannot be applied to man. The dog mesentery does not bear ligation well, and the disturbances in the circulation almost inevitably entail trouble.

69. **The Chemical and Histologic Changes in the Thyroid in Exophthalmic Goiter.**—Kocher concludes from examination of 160 patients with exophthalmic goiter that the hypersecretion of the thyroid, or rather the hyperresorption, as he prefers to say, is dependent on the chemico-histologic behavior of the gland before clinical manifestations develop. A diffuse colloidal degeneration may exist without the knowledge of either patient or physician. He states that more iodin is absorbed from the Basedow gland than under other conditions, while this surplus iodin is not eliminated from the system at once as in health.

70. **Treatment of Pseudarthrosis and Defects in the Long Bones.**—Codivilla has applied osteoplastic treatment in 27 cases and gives radiographs of the ultimate outcome to show the advantages of his technic. The transplanted strip of bone was generally taken from some other bone in the same patient, and was fastened with two wires at each end. He aims further to promote the activity of bone regenerating processes

by the use of pedunculated flaps of bone-forming tissue, or at least taking similar living flaps from some other person. The two main factors for the healing are stability of the flaps in their new bed and ample supply of periosteum.

71. **Splenectomy in Malaria.**—Solieri reports four cases in which the enlarged malarial spleen required removal on account of subcutaneous rupture, sevenfold torsion or displacement. The patients were a man of 57 and three women between 22 and 34. The hemorrhage in the man was so severe that he succumbed; 4½ hours had elapsed before operative treatment, during which time the man had walked nearly a mile, showing that the hemorrhage in a ruptured spleen must occur slowly enough to give surgical measures a chance if the delay is not too long. Solieri advises against splenectomy for the malarial spleen unless it induces serious disturbances and the upper pole is below or only a little above the costal arch.

72. **Surgical Treatment of Traumatic Epilepsy.**—Tilmann reports 20 cases with a complete cure in 60 per cent. and improvement in an additional 5 per cent., while 2 patients were still under treatment and one had died. The interval since the operation had been from 6 months to over 3 years. He reviews 260 similar cases from the literature, stating the technic and the outcome. A cure or improvement was realized in all but 15.3 per cent. with the exception of 6.1 per cent. with a fatal termination, but he adds that 29 per cent. of the total were under observation for less than 6 months. He draws the important lesson from his experience that operative treatment is always indicated when there is a "depression fracture" of the skull or when any signs indicate a lesion of the skull or brain. In scarcely any of the total cases of traumatic epilepsy had there been any primary trephining, while on the other hand, Beresowsky has reported that epilepsy developed in only 1 out of 13 cases of severe injury of the skull in which operative treatment was instituted at once. An abscess developed in this one case but all the other patients remained healthy, although there must have been extensive adhesions. He experimented on dogs and found that adhesions invariably develop in such a case but scarcely ever any nervous symptoms if trephining had been done. Tilmann's patients were between 20 and 41 years except 4 youths between 13 and 17.

73. **Physiologically Correct Abdominal Incision.**—Sprengel relates the reasons which have compelled him to abandon the transverse incision in favor of the longitudinal and to refrain from auxiliary sutures as superfluous with this technic. Several colored plates accompany the article.

Beiträge zur klinischen Chirurgie, Tübingen

May, LXVIII, No. 1, pp. 1-378

74 Frequency of Hernia in Cicatrix from Appendicitis Operations. (Häufigkeit der Narbenhernien nach Appendicitisoperationen, besonders nach den mit primärer Naht behandelten Abscessen.) M. v. Brunn.
75 Acute Osteomyelitis of the Ribs. H. Fritz.
76 Mechanical Basis of Ileocecal Invagination. K. Blauel.
77 Branchiogenic Enchondroma. H. Kolaczek.
78 *Actinomycosis of the Orbit. P. Müller.
79 Radiography of Fracture of the Top of the Skull. (Der Gewölbebruch des Schädels.) E. Schwartz.
80 *Roentgen-Ray Diagnosis of Surgical Gastric Lesions. (Die röntgenologische Diagnostik chirurgischer Magenkrankheiten.) E. Finckh.
81 *Rupture from Taxis of Incarcerated Intestine in Hernia. (Die Taxisrupturen des eingeklemmten Bruchdarmes.) F. Sänger.
82 Appendicitis in Hernial Sac. (Appendicitis im Bruchsack.) F. Barsickow.
83 *Amputations During Childhood and Their Consequences for the Growth of Bone Later. (Die Amputationen im Kindesalter und ihre Folgen für das Knochenwachstum.) A. Reich.

78. **Actinomycosis of the Orbit.**—In the case described there was considerable proliferation of the inflamed bone, forcing the eyeball forward but the disturbances subsided after the focus was excised by turning back the malar bone to obtain ample access to the lesion. Müller has found 9 similar cases on record, which he summarizes. His patient had probably become infected through carious teeth, as there were actinomycotic processes in and under the temporal muscle. Eight of the 9 patients on record succumbed to meningitis or other intracranial affection and the ninth to typhoid, all within one year of the first symptoms of the orbital lesion and Müller's patient did not survive the operation more than a few months as there was early recurrence.

80. **Roentgen-Ray Diagnosis of Malignant Stomach Disease.**—Finckh states that 150 patients with suspicious stomach affections have been examined with the Roentgen rays at the Tübingen university clinic in the last two years and that in every case in which the lack of hydrochloric acid and other symptoms suggested cancer, although no tumor could be palpated, the skiagrams revealed its existence and the operation confirmed the positive findings. But in every such case the lesion was found too far advanced for successful removal. The 5 patients in this group were between 29 and 63. In another case a tumor could be palpated and yet the gastric secretions seemed to be normal, the Roentgen findings were positive, and the cancer was successfully removed while it proved inoperable in a second similar case. In the 90 cases of certain cancer there was free hydrochloric acid in 7, lacking in 78; lactic acid in 46, lacking in 38. The combination of lacking hydrochloric acid plus present lactic acid was encountered in 45 cases; both were absent in 32. Several plates accompany the article.

81. **Rupture of the Bowel from Taxis of Incarcerated Hernia.**—Sänger gives the details of 5 such cases encountered in 165 cases of incarcerated hernia in the last 3½ years at the Tübingen university clinic. The patients were women between 44 and 70 and the hernia was of long standing in all; the taxis was done by a physician in 2 of the cases. The rupture was followed by peritonitis in all the cases, to which 3 of the patients succumbed, while the others were saved by resection of 7 to 130 cm. of the gut. Sänger then gives summaries of 35 similar cases he has found in the literature; all the patients were over 30. It is probable, he adds, that many such cases of taxis rupture occur without the knowledge of any medical man, the primary cause of the resulting peritonitis not having been ascertained. The larger proportion were femoral hernias, and generally of long standing and in most cases the hernia had been frequently previously reduced without trouble. The rupture occurred in one case only 1 hour after the onset of the incarceration, while in another case the intestine could be easily sutured without reenforcement, although the incarceration was of 12 hours' standing. He is convinced that rupture may occur from taxis even with a sound bowel. In the total 40 cases the taxis had been applied by a physician in 14 cases, and in 6 cases special mention is made of the reduction having occurred very easily and promptly under cautious maneuvers. Ten of the 22 patients operated on were saved, but only 10 of the total 40, the mortality thus being 75 per cent.

83. **Consequences for the Later Growth After Amputations in Childhood.**—Reich reviews 45 cases from the literature, 20 from the Tübingen clinic, and also 18 cases in which coxa valga developed after amputation of the leg. Study of this material shows that much can be done in the way of prophylaxis to prevent the almost inevitable slanting contraction of the pelvis which results from the unequal bearing of the weight on the sound leg. The bone of the stump continues its growth in children while the muscles atrophy. The result is a tapering stump, and this physiologic tapering should be prevented, he declares, at the time of the amputation, by providing for ample attachment of the muscles to the stump of the bone, thus permitting the muscles to develop normally, parallel with the bone. The technic for such an arrangement is still to be worked out, he adds, as also means to prevent development of coxa valga and oblique contraction of the pelvis after amputation of the leg in children supplied with an artificial limb. The growth of the pelvis is comparatively uninfluenced when the child uses a crutch exclusively. The article is illustrated.

Berliner klinische Wochenschrift

June 20, XLVII, No. 25, pp. 1165-1212

84 *"Albumin Milk" in Infant Feeding. (Ernährung magendarmkranker Kinder mit Eiweissmilch.) H. Finkelstein and L. F. Meyer.
85 Experimental Syphilis in Rabbits and Monkeys. (Zur experimentellen Kaninchen- und Affensyphilis.) P. Uhlenhuth and P. Mulzer.

86 *Suction Drainage of the Pleural Cavity. (Saugdrainage der Pleurahöhle.) F. Härtel.
87 Hernia of the Diaphragm. (Hernia diaphragmatica dextra.) H. Dietlen and G. Knierim.
88 *Unilateral Congestion of Lymph with Lung and Pleura Lesions. (Ueber halbseitige Lymphstauung bei Erkrankungen der Lunge bzw. Pleura.) M. Bönniger.
89 Sphygmograph. R. du Bois-Reymond.
90 Ether-Acetone Antiformin Method of Sputum Examination. Koslow.

84. See abstract 107 in THE JOURNAL, July 2, 1910, page 93, and editorial, July 30, page 407.

86. **Suction Drainage of the Pleural Cavity.**—In this communication from the university clinic at Berlin in charge of Bier, Härtel describes a simple portable contrivance which permits continuous aspiration of pus and other fluid from the pleural cavity while the patient is up and about. A square of dentist's rubber dam, through the center of which a catheter is passed into the pleural cavity, fits air-tight against the skin, while a rubber tube connects the catheter with a glass vial with two necks, the second neck connected with a rubber bulb. The vial is made flat and curved to fit against the body and is worn in a cloth pocket suspended from the opposite shoulder while a second similar pocket on the other side holds the rubber bulb. He reports several cases of empyema in which this little portable contrivance aided materially in the cure. The method can be applied to any fistula opening into a suppurating cavity.

88. **Unilateral Impairment of Circulation of Lymph with Disease in the Lung and Pleura.**—Bönniger has been studying for four years a symptom which he thinks is of extreme importance for the early diagnosis of affections of the lungs. This is a change in the tissues on the corresponding side so that they look plump, the change manifesting itself in the muscles, in the connective tissue and skin. It is not edema; the diseased side merely looks plumper and healthier. He explains it as the result of a congestion of lymph resulting from the pleural affection; there is no inflammation, redness or pain. With extensive processes the stasis may extend through the whole side of the body, as he shows by some examples of the extreme type in women with cancer or actinomycosis of the lung. The congestion never amounts to actual edema and the sound side is entirely free from it. In one of the illustrations given a child is shown with the buttocks and side plumper on the side of a pneumonia process some time before. In another the gluteal region is much emaciated, while the side corresponding to a tuberculous lesion in the lung with pleurisy is plump and rounded. A very important point is that this unilateral plumpness may first become apparent or may assume striking proportions immediately after a subcutaneous tuberculin test. He has observed this local reaction in a number of cases after the tuberculin test with doses too small to induce a general reaction. He further says that Pottenger's sign of muscle rigidity is probably due to this cause and not to contraction of the muscles from irritation of the sympathetic, as Pottenger explains it. Inflammatory processes in the pleura seem to entail this stasis of lymph in its most pronounced form, but its great diagnostic value is with apical disease, although its absence does not exclude lesions in the lung and pleura. It is characteristic more for the pleura than the lung, although its sudden development after injection of tuberculin has specific differential value.

Centralblatt für die Grenzgebiete der Med. und Chir., Jena

June 18, XIII, No. 10, pp. 369-400

91 *Operative Treatment of Gastric Crises in Tabes. A. Götzl.

91. **Operative Treatment of Gastric Crises in Tabes.**—Götzl reviews the experiences to date in this line, having applied operative treatment to one of his own patients with gratifying results, as has already been mentioned in these columns. Mingazzini first suggested intradural resection of the sacrolumbar roots for the lancinating abdominal pains in tabes, but Foerster first rendered it feasible for gastric crises, and Küttner applied it in practice. The latter has now operated in four cases of gastric crises. Bruns and Sauerbruch in another, one recently reported by Enderlen and Götzl's case bring the total to 7 to date. The question now is as to the best time for operative interference and whether it is not better to resect enough roots to ensure against recurrence of both gastric and abdominal pains. The pathologic-anatomic basis for the operation is the assumption that the gastric crisis is a periodical syndrome of phenomena showing irritation of a hypersusceptible gastric mucosa, the phenomena involving the sensory, motor and secretory functions of the stomach at once as a rule. Besides these phenomena there is generally a zone of hyperesthesia of the skin in the zone corresponding to the segment innervated by the seventh to the ninth dorsal roots, inclusive; this hyperesthesia is permanent or observed only during the attacks, and the cutaneous reflexes in the epigastrium are generally exaggerated. According to Head, the sympathetic fibers for the gastric mucosa run in these same seventh to ninth spinal roots. Any pathologic irritation of these roots might therefore theoretically induce all the phenomena observed, and severing the six roots in question does seem to put an end to the gastric crises *in toto*.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 20, XL, No. 18, pp. 569-600

92 Freud's Conception of "Sexual Neuroses." (Zur "Psychoanalyse" nach Freud.) P. Maag.
93 Etiology and Treatment of Post-Partum Hemorrhage. A. Labhardt. Commenced in No. 17.

Deutsche medizinische Wochenschrift, Berlin

June 30, XXXVI, No. 26, pp. 1209-1256

94 *New Drugs. (Ueber neuere und neueste Arzneimittel.) J. Biberfeld.
95 *Ehrlich's "Substance 606." (Ueber das neue Ehrlichsche Mittel.) A. Neisser.
96 *Serodiagnosis of Syphilis by Noguchi Technic. J. G. Sleeswijk.
97 *Modification of Serotherapy to Prevent Anaphylaxis. (Anallergische Sera.) A. Ascoli.
98 Vaccination Against Relapsing Fever. (Vakzinationsversuche bei Typhus recurrens.) J. Schereschewsky.
99 *Constitutional Predisposition to Bothriocephalus Anemia. (Welche Rolle spielt das konstitutionelle Moment in der Pathogenese der Bothriocephalus-Anämie?) O. Schaumann.
100 Advantages of Intravenous Tuberculin Treatment. F. Mendel.
101 Causes of Rigidity of Abdominal Wall. (Ursachen der Bauchdeckenspannung.) A. Hoffmann.
102 *Electrolytic Cure of Recurring Cancer in the Rear of the Pharynx. (Ueber eine wichtige Verwendungsmöglichkeit der Elektrolyse in den oberen Luftwegen im Anschluss an einem geheilten Fall von Epithelialkarzinom der Basis cranii.) R. Kafemann.
103 Medical Missionaries in the German Colonies. (Stellung und Tätigkeit der Missionsärzte in unseren Kolonien.) K. Axenfeld.

94. **New Drugs.**—Biberfeld reviews the pharmaceutical harvest of the last few years, saying that not much grain is left after separating it from the chaff.

95. **Ehrlich's "Substance 606."**—A summary of Neisser's article was given in the Berlin Letter on page 326, July 23.

96. **Serumdiagnosis of Syphilis According to Noguchi.**—Sleeswijk found that the Noguchi paralleled the Wassermann findings in cases of certain syphilis, but that non-specific changes were liable to occur with the Noguchi technic in febrile and in other not explained conditions, such as are not observed with the original Wassermann technic and which detract from the reliability of the Noguchi method.

97. **Antianaphylactic Serum.**—Ascoli comments on the clinical experience that anaphylaxis does not occur when the succeeding serum injection is made with serum from a different species of animal from that used in the first series of injections. After considerable research he was able to produce diphtheria antitoxin from sheep serum, and thinks that this will solve the problem of warding off anaphylaxis. The sheep antitoxin may be reserved for the succeeding injections for patients who display the slightest signs of intolerance at the first injection. The sheep serum does not prevent ordinary serum sickness, but it serves to obviate the symptoms resulting from the hypersusceptibility of the individual. Consequently he proposes to call the serum used for this purpose anallergic serum, adopting von Pirquet's term, "allergy," to express this hypersensitization of the system. He mentions in passing that the most serious cases of anaphylaxis were observed by von Pirquet after the use of heated serums, and he also cites Francioni's statement that the development of anaphylaxis seems to be followed by the loss of the passive immunity conferred by the serotherapy.

99. **Family Tendency to Bothriocephalus Anemia.**—Schauman writes from Helsingfors to call attention to the occurrence of bothriocephalus anemia in several members of a family as he has encountered it in 8 families. In 7 other cases bothriocephalus anemia was followed later by the development of a progressive and fatal anemia some time after a successful course of treatment to dislodge the parasite.

102. **Successful Electric Treatment of Recurring Cancer in the Throat.**—Kafemann reports a case of epithelial carcinoma in the nasopharynx of a policeman about 38 years old. The cancer was removed with apparent success but three months later there was a stormy recurrence with numerous metastases in adjoining glands on both sides of the neck. After curetting the growth, it was given electrolytic treatment and rapidly retrogressed under 13 exposures; there has been no trace of recurrence during the 2 years since. He applied a current of about 22 milliamperes for 10 or 15 minutes at a time, the sittings at intervals in the course of 6 months. A suspicious bunch was curetted away twice during the course of electrolytic treatment and the glands in the neck were operated on a month before the last exposure.

Fortschritte der Medizin, Leipsic

June 23, XXVIII, No. 25, pp. 771-800

104 Treatment of Uterine Carcinoma. F. Fromme.
105 Action of Baths on the Size of the Heart. (Einwirkung von Bädern auf die Herzgrösse.) R. Schmincke.

Medizinische Klinik, Berlin

July 3, VI, No. 27, pp. 1043-1082

106 *Progress in Pathology and Bedside Diagnosis of Heart Disease. (Fortschritte der Pathologie und Diagnostik der Herzkrankheiten und ihre praktische Verwertung am Krankenbette.) N. v. Jagic.
107 *Importance of the Thyroid for the Growth of the Skeleton. (Das Langenwachtum bei Hyperthyreose.) J. Holmgren.
108 Intestinal Hemorrhage with Appendicitis. (Darmblutung bei Epityphlitis.) H. Riese.
109 Test for Bilirubin. (Bilirubinprobe.) H. Gunther.
110 Experiences with Modifications of the Wassermann Reaction. (Ergebnisse der Porgesschen Luesreaktion 131 Fällen.) L. Merian. (Erfahrungen über die Dungersche Methode der Syphilisreaktion in der Sprechstunde.) Schultz-Zehden.
111 Readily Improvised Incandescent Electric Light Baths. Baumann.
112 Indications for and Advantages of Institutional Treatment of Heart Disease. (Anstaltsbehandlung bei Herzkranken.) Konried.
113 Behavior of Pathologic Sera in Respect to Saponin Hemolysis. A. Herz and K. Landsteiner.
114 Relations Between the Viscosity of the Blood and the Organic Functions. (Beziehungen der Viskosität des Blutes zu den Körperfunktionen.) H. Determann.

106. **Progress in Bedside Diagnosis of Heart Disease.**—Jagic discusses what has been learned in recent years from inspection, palpation, percussion and auscultation findings as controlled by radioscopy, graphic registration of pulse and blood pressure, plethysmography, the electrocardiogram, etc. None of these new methods can take the place of the older physical means of examination but they have served a most useful purpose in giving us more confidence in the percussion and auscultation findings and enabling us to interpret them more accurately, as he reviews in detail.

107. **The Growth of the Skeleton with Hyperfunctioning of the Thyroid.**—Holmgren states that when exophthalmic goiter or a tendency thereto develops about puberty, the young people thus affected grow unusually tall as a rule, but when the exophthalmic goiter develops after maturity, the individuals are not above the average height. His study is based on 127 cases of goiter, and 2,500 measurements of children of various ages to establish average standards. He has also found on record 89 cases of exophthalmic goiter in children under 15; in 25 of the 37 cases in which the size of the children was mentioned it is stated that they were unusually tall, and in 6 rather tall. His research has further demonstrated that the ossification of the epiphyses occurs earlier in tall children than in the short. Nature seems to wish to give the latter a chance to catch up with the others. All his material seems to suggest that extra functioning on the part of the thyroid gland entails greater growth of the skeleton. Negative evidence is also afforded by the defective growth with hypofunctioning of the gland. He mentions in passing that the thyroid is the only vital organ, with the exception of the skin, which lies superficially without being protected by a bony covering. With increasing age the thyroid gradually sinks lower until in middle age it is protected behind the manubrium. A number of the "growing" symptoms observed at puberty may be traced to hyperfunctioning on the part of the thyroid, he adds, and there is much to suggest that when the latter occurs the children mature earlier, both physically and mentally. It is possible, he suggests, that a casual infection may stimulate the thyroid to greater functioning and thus indirectly promote the growth of the skeleton.

Monatsschrift für Kinderheilkunde, Berlin

May, IX, No. 2, pp. 65-130

115 *Influence of the Nursing Mother's Diet on the Growth and Development of Her Infant. (Einfluss der Nahrungsart der Mutter auf Wachstum und Entwicklung des Säuglings.) A. N. Schkarin.
116 *Influence of the Nursing Woman's Diet on Lactation. (Einfluss der Ernährung der Stillenden auf die Laktation.) A. Keller.
117 *Some Fundamental Conceptions of "Physical Chemistry." (Wandlung unserer Anschauungen über die Bedeutung der anorganischen Salze.) H. Koppe.
118 Fifteenth Critical Review of Recent Literature on the Biology, Chemistry, etc., of Milk and the Production of Milk. (Milchwissenschaft und Mölkereipraxis.) R. W. Raudnitz.

115-116. **Influence of Diet of Nursing Mother on Development of the Infant.**—Schkarin's research was conducted on rabbits but the results confirm what is constantly observed in practice, namely, that the mother seems to be able to supply her nursling with all that it needs for its normal development, regardless of the kind and amount of food she is herself taking. Keller has been studying the subject from the standpoint of the lactation. A nursing mother, wife of a physician, wishing to retain her figure unmodified by lactation, subsisted on an antiobesity diet, a strict "Banting course," for two months with much exercise. The amount of milk constantly averaged from 350 to 450 gm. a day. The child seemed to thrive on this although it did not increase quite normally in weight until the mother's milk was supplemented by another's. The mother weighed 70 kg. at the birth of the child and 67 by the end of two months. The child weighed 2,700 gm. at birth, 5,770 at six months and 7,200 at 12, and has always been healthy except for a slight tendency to rachitis.

117. **Infant Feeding from Standpoint of Osmosis.**—Koppe hails as a great advance the recent attempts made to estimate the effect on the osmosis of the mineral salts in infant feeding. Certain experiments have already shown that the organism reacts differently to various food mixtures containing exactly the same mineral elements and in the same amount but of different constitution. He insists that the ash content and the salts content of the food are by no means identical. See 84 above.

Münchener medizinische Wochenschrift

June 28, LVII, No. 26, pp. 1377-1424

119 *Treatment of Placenta Prævia. M. Hofmeier.
120 *Pathology of the Suprarenals. (Zur Pathologie der Nebennieren.) R. Rössle.
121 The Functional Capacity of the Human Mammary Gland. (Leistungsfähigkeit der menschlichen Brustdrüse.) M. Thiemich.
122 *Value of the "Thread Reaction" in Typhoid. (Welchen Wert hat die "Fadenreaktion" für die Diagnose des Abdominaltyphus, für das Auffinden von Typhusbazillenträgern und die Differenzierung von Bakterien der Paratyphusgruppe?) W. Gaehtgens and W. Kamm.
123 *Rapid and Simple Staining Technic for Spirochetes. (Eine neue Spirochätenfärbung.) R. Kalb.
124 Alkaline Phenol Method of Determining Organic Oxidizing and Reducing Substances. W. Loele.
125 *Technic for Continent Artificial Sphincter. (Operation des Krebses der Analportion mit künstlicher Sphinkterbildung.) E. Welcke.
126 Treatment of Ankylosis of the Shoulder. (Zur Behandlung der Schultergelenksversteifung.) A. E. Stein.
127 The Wassermann Reaction and the General Practitioner. H. Noguchi.
128 W. F. v. Hilden, M.D., 1560-1634. (Guilielmus Fabricius Hildanus.) C. Sudhoff.

119. **Treatment of Placenta Prævia.**—Hofmeier reviews 100 cases of placenta prævia from his own experience; the mortality was 8 per cent. but in only 3 per cent. of the fatal cases could the method of treatment possibly be incriminated in the outcome. The general results show, he declares, that there is no reason for forsaking the old reliable methods of combined version and the use of the inflatable bag, and he urges that medical students should be trained in these and other methods as it will be many years yet before institutional care is possible for all deliveries.

120. **Pathology of the Suprarenals.**—Rössle remarks that a growing respect for small organs is one of the signs of modern pathology, and an autopsy now has no claims for completeness unless the tonsils, thymus, pancreas, suprarenals, thyroid and parathyroids and the hypophysis are examined. The suprarenals are proving to be indispensable organs; this is not so clear with Addison's disease, on account of its gradual development, as with the hemorrhagic destruction of the suprarenals in the newly born. He reports a case of the latter, one of the few in which the correct diagnosis was made during life. He also cites some cases of hyperplasia and hypertrophy of the suprarenals with the resulting syndromes, and a case in which aberrant suprarenal cells were found in the pararenal tissue; some were calcified and one had evidently been the source of fatal hemorrhage in the bed of the kidney. He has found at autopsies 39 cases in which the suprarenal medulla was moderately hypertrophied and 15 with excessive hypertrophy. All these cases had the common feature of repeated large or continuous small hemorrhages, and in other cases there seemed to be a special tendency to dropsy, chronic diarrhea and frequent vomiting—all of which may have aided in inducing the hypertrophy of the suprarenals, as he explains in detail. The drop in blood pressure following much loss of blood is probably compensated for by extra production of the active principle of the suprarenal gland. This suggests that it might be well to supply the organism with the active principle of the suprarenal gland from without in case of repeated large or continuous small hemorrhages. This assumption is sustained by the remarkably small amount of suprarenal medulla which he found in cases of a permanently overfilled vascular system, in which the tension of the vessels was maintained by their content alone, and thus the suprarenal functioning was rendered comparatively superfluous. Experimental research is needed in both lines, first to see how animals stand hemorrhage after removal of the suprarenals on one side or both; secondly, to see whether the blood contains more of the active principle of the suprarenal gland after venesection and whether the suprarenal medulla becomes hypertrophied after repeated withdrawal of small amounts of blood.

122. **"Thread Reaction" as Differential Sign of Typhoid.**—This rapid method for differentiation of typhoid was described in THE JOURNAL, March 5, 1910, page 929. The experiences related in this article seem to confirm its value, especially for detection of healthy bacillus carriers. Only the completely positive reaction has specific value, and this complete reaction generally accompanies high agglutinating properties, although the tendency to thread production briefly precedes agglutination as a rule.

123. **Improved Stain for Spirochetes.**—Kalb describes a staining method which, he states, takes less than a minute, the stains are cheap and the technic simple. In 49 cases he determined the presence of spirochetes by this method when the Wassermann reaction was occasionally negative. The technic is commended especially to the general practitioner for its simplicity and convenience. The stain is a combination of 0.5 parts of eosin B.A.; 50 parts alcohol and 30 parts triacid stain (methyl green, acid fuchsin and orange). The stain thus contains four dyes; the mixture should be clear. He prefers oozing serum for the test, obtained as a papule is rubbed a little or an erosion curetted. The specimen is fixed and a few drops of the stain are poured on it and the whole heated over a flame; then rinsed with water and a large amount of a 10 per cent. solution of commercial acetic acid poured over it carefully two or three times from the edge. The specimen then looks pink, the spirochetes and bacteria do not take the stain but show up white against the pink background unless the staining has been done too intensely, in which case it is better to commence over again. The spirochetes show up better in the edges of the preparation.

125. **Artificial Sphincter Formation.**—Welcke reports success with an artificial sphincter formed by crossing a bunch of fibers from the gluteus muscle on each side of the fistula after resection of a rectal cancer. The stump of the rectum was drawn out for more than an inch and was sutured to the skin where it emerged. In the case described the patient soon learned to contract the gluteal muscle at the approach of feces so that continence is secured; the crossed fibers were able to exert the needed pressure on the base of the protruding stump of the bowel. The article is illustrated.

Wiener klinische Wochenschrift, Vienna

June 30, XXIII, No. 26, pp. 963-990

129 *Pathogenesis of Pellagra. H. Raubitschek.
130 *Pathogenesis of Psoriasis. B. Lipschütz.
131 *Ozonization of Milk. (Ozonieren von Milch.) E. Wiener.
132 Operative Treatment the Only Effectual Means of Curing Cancer. (Ueber die Versuche, das Karzinom auf nichtoperativen Wege zu heilen.) E. Venus.

129. **Cause of Pellagra.**—Raubitschek has been applying the biologic, anaphylactic, serologic, deviation of complement and other tests to determine the actual bases of the various theories in regard to the origin of pellagra. His extensive experimental work was done at the institute for pathology and bacteriology at Czernowitz. The constantly negative results show, he thinks, that none of the theories at present in vogue is correct. He then reports further research which seems to show that pellagra and beriberi are the result of the action of some toxin in corn and rice which does not display any toxic action unless it is sensitized by the chemical rays of the sunlight. Laboratory animals fed with corn or rice kept well so long as they were not exposed to direct sunlight, but under the influence of sunlight developed emaciation and paralytic phenomena, dying in from 8 to 21 days. He found that animals taken away from the sunlight, soon after the onset of symptoms, rapidly recovered, without change of diet. The anatomic and bacteriologic findings in the animals were constantly negative. He was led to this conception of the origin of pellagra as the action of an alimentary poison plus sunlight by the experiences with white animals fed on buckwheat. Kept in the dark they remained healthy, while when exposed to the sunlight the hair dropped out and the animals became emaciated and soon died with symptoms of paralysis. This syndrome was not observed with the dark-colored animals or with those kept out of the sunshine. The similarity between this "fagopyrism" and pellagra is more striking on account of the facts that the pellagra symptoms develop in summer with special intensity, that the skin manifestations are almost exclusively restricted to the parts exposed to the sunlight, that corn has more fat than any other grain, and that the active body in buckwheat is soluble in alcohol. He explains pellagra consequently as due to a toxin which develops in the parts of the skin exposed to the sunlight from the action of the chemical rays on the lipoid, alcohol-soluble element in corn. The toxin developing in the skin causes the superficial lesions and has also injurious systemic action. He cites some analyses of wheat, rice and corn showing the proportions as follows:

	Water.	Dry Substance.	Protein.	Fat.
Wheat	13.6	86.4	12	1
Rice	10	89.5	11.7	2.3
Corn	10.2	90	15.2	3.8

131. **Ozone Sterilization of Milk.**—Wiener presents an apparatus which he states sterilizes milk completely from pathogenic germs and toxins without altering it in any way, or impairing its protecting substances, while the milk can be kept much longer. The milk in the form of a very fine spray, is submitted to the action of the ozone, while the ozone is then driven off by immediate aeration. The lactic acid bacilli resist the sterilizing process more than cholera germs, typhoid, colon and tubercle bacilli. The process has to be different from the technic for ozone sterilization of water as it is important to refrain from destroying the organic substances in the milk.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXVI, No. 2, pp. 215-513. Last indexed May 28, p. 1833

133 Rapidity of Dissemination of Germs in Puerperal Endometritis. (Schnelligkeit der Keimverbreitung bei der puerperal-septischen Endometritis.) O. Pankow.
134 *Scopolamin in General Anesthesia. (Scopolaminnarkosen.) R. Ruckert.
135 *Experiences with Instrumental Dilatation of the Uterine Cervix and Vaginal Cesarean Section. (Die Erfahrungen bei der Collumerweiterung nach der Bossischen Methode und beim vaginalen Kaiserschnitt für die Jahre 1905-1910.) Weiseher.

136 Cesarean Section. (Zur Kaiserschnittfrage.) M. Henkel.
137 *The Physician Before the Law. (Der Arzt als Angeklagter.) F. Ahlfeld.
138 Importance of Lecithin for Differentiating Various Species of Streptococci. (Zur Differenzierung von Streptokokkenstämmen durch Frommes Lezithinverfahren.) M. Traugott.
139 *Relations Between Uterine Myoma and Conception. O. Goetze.
140 *Anatomic Bases for Post-Partum Hemorrhage. A. Labhardt.
141 Final Outcome of Genital Prolapse Operations with Plastic Utilization of the Uterus. (Resultate der Prolapsoperationen mit Interpositio uteri vesico-vaginalis.) P. Bröse.
142 *Prognosis and Treatment of Puerperal Fever. R. T. Jaschke.

134. **Scopolamin Preliminary to General Anesthesia.**—Ruckert usually gives the evening before the operation 0.5 gm. veronal; one hour before the operation an intramuscular injection of 0.0004 gm. of scopolamin and a half hour later 0.0002 gm. of the same with 0.01 gm. morphin, following with chloroform or ether. He reports the experiences with 114 patients anesthetized in this way although the above dosage was strictly followed in only 87 cases. His verdict is favorable on the whole; in 2 cases there was some anxiety; both were uterine cancer cases, and in the first the patient ceased breathing although the heart kept beating regularly; not until after 45 minutes of artificial respiration and stimulants was respiration restored. In the second case there was violent delirium for an hour after the patient roused from the anesthesia. There was no asphyxia in any case, the respiration was regular but shallow; the pulse was frequently irregular and slight cyanosis was frequent. The euphoria on rousing was striking; there was no vomiting afterward in 7 cases and only slight vomiting in 13. The pain and restlessness increased regularly towards night so that another injection of morphin was necessary.

135. **Instrumental Dilatation of the Cervix Uteri and Vaginal Cesarean Section.**—Both this and the previous article issue from the Berlin university clinic for women, in charge of Olshausen. Weischer reports the use of the Bossi dilator in 71 cases with favorable outcome for both mother and child in all except 1 case of uremia, 1 of protracted delivery and 15 of eclamptic coma and 1 of eclampsia. The dilator answered its purpose in every case. The cervix became lacerated in 23 of the cases but not enough to require suturing except in 14, and only 6 were followed by a febrile puerperium. Seventeen of this group of 23 recovered; the 5 who died were all in eclamptic coma at the time the dilator was applied. The placenta had to be separated afterward in 4 of the total cases. The dilator is thus seen to answer its purpose and not to do the harm that some fear from it. Vaginal Cesarean section was applied in 45 cases and all the women recovered except 6 in eclamptic coma. The incision tore further in 3 cases but this did no harm. There was fever in 14 cases, preexisting in 7 of the cases. Olshausen adds a word to the effect that vaginal Cesarean section has the advantage of more rapid action but that the metal dilator is preferable in the absence of skilled assistance.

137. **The Physician Before the Law.**—Ahlfeld discusses proposed changes in the criminal code in Germany, especially in regard to the necessity for explicitly excepting physicians from the provisions of the personal injury laws. The more explicit the exemption of physicians under given conditions from the laws regulating personal injury, the less likelihood for malpractice suits against them. Every medical and surgical procedure is to aid in healing and helping and it should not, he says, be regarded from the standpoint of personal injury, but should be specially exempted. The consent of the patient beforehand may sometimes be dispensed with by experienced and responsible heads of institutions, but there should be some legal restraint on the zeal of young beginners and others too ready to operate. He cites some instructive instances of the direct refusal of the family to permit the needed operation; in one such instance, a case of transverse presentation with a very contracted pelvis, Credé finally locked the objecting husband out of the room, and did what he deemed necessary. Ahlfeld discusses the legal aspect of artificial abortion, perforation, and expert testimony by and against physicians. In conclusion he applauds von Franqué's suggestion, recently mentioned in these columns, that it shall be legally provided that no suit shall be instituted against a physician without previous consultation with a medical expert or with a committee from the medical faculty of the university to determine whether there are actual grounds for the suit, as the mere bringing even of a baseless suit is liable to tarnish a physician's reputation.

139. **Relations between Myoma and Conception.**—Goetze states that 8.1 per cent. of the 1,500 gynecologic patients at the Greifswald clinic in the last 2 years had myoma and that 13.6 per cent. of the 105 married women with small myomas were sterile, 17.4 of those with myoma up to the size of a child's head, and 50 per cent. of those with myoma the size of a man's head and over. Submucous myomas develop almost exclusively in women who have borne children. Small subserous myoma scarcely interferes at all with conception and even very large myoma does not exclude it. The submucous myomas have the most unfavorable prognosis, especially when there are changes in the mucosa and much bleeding. Their removal is indicated generally the more as the patients have already borne children as a rule. Conservative myomectomy increases the chance for conception, and conditions for it are more favorable the less the mutilation and mucosa changes and the earlier the myoma is diagnosed. If an operation is not possible, women in the thirties with an interstitial myoma of some size have scarcely any chance of further conception.

140. **Anatomic Bases for Post-Partum Hemorrhage.**—Labhardt declares that preponderance of connective tissue in the uterine musculature is sometimes responsible for post-partum hemorrhage. It is practically impossible to diagnose this condition except from the failure of the uterus to respond to the usual measures. In these cases hysterectomy is the only means to arrest the hemorrhage.

142. **Prognosis and Treatment of Puerperal Fever.**—Jaschke comments on the disappointing results of study of the blood picture and similar means to estimate the probable outcome in puerperal fever, and then states that he has been devoting special attention to study of the heart and large vessels and has discovered that the paralysis of the splanchnic vessels is the index of the severity of the disease, while it is the main source of danger. The tone of the splanchnic vessels is so important for maintaining the blood pressure that when this weakens, the serious disturbances in the circulation characteristic of puerperal fever follow. In the cases that terminate favorably the heart is able to compensate the lacking elasticity of the vessels. As this relaxation of the splanchnic vessels and the compensatory strengthening of the heart action, or the lack of them, can be clinically determined and followed by the measurement of the blood pressure on one hand and by the behavior of the second aortic sound on the other hand, it is possible to draw reliable conclusions as to the prognosis. It is favorable in the cases in which the blood pressure does not decline or the decline at first is followed by return to normal either from recuperation of the splanchnic vessels or from compensating extra work on the part of the heart, either naturally or under the influence of digitalis, caffein or suprarenal preparations. The prognosis is absolutely bad when the aortic sound grows weaker and the blood pressure declines and this cannot be altered permanently by therapeutic measures. The reacting capacity and its promptness, under drugs, are also an index of the resisting powers as well as of the severity of the infection.

Zentralblatt für Chirurgie, Leipsic

July 2, XXXVII, No. 27, pp. 905-928

143 A Year of Tincture of Iodid Sterilization of the Skin. (Ein Jahr Hautdesinfektion nach Grossich.) T. Papaioannou.

Zentralblatt für Gynäkologie, Leipsic

July 2, XXXIV, No. 27, pp. 897-928

144 *Local Anesthesia of the Pudic Nerve in Gynecology and Obstetrics. (Anästhesierung des Pudendus in Gynäkologie und Geburtshilfe.) H. Sellheim.
145 Nucleic Acid Not Reliable as Prophylactic for Puerperal Fever. (Haben wir von der prophylaktischen Anwendung der Nukleinsäure unter der Geburt und im Wochenbett eine Verbesserung der Morbidität zu erwarten?) E. v. Graff.
146 *The Question of Congenital Tuberculosis. A. Hamm.

144. **Local Anesthesia of the Pudic Nerve in Gynecology and Obstetrics.**—Sellheim has been testing the method of local anesthetization of the pudic nerve recently suggested by Ilmer

and mentioned in THE JOURNAL, page 95. He found it very satisfactory, enabling suture of tears in the perineum, application of forceps and extraction of the fetus, even in primiparæ, without pain, besides various gynecologic operations. No untoward by-effects were observed in any instance. He advises injecting a considerable amount of the anesthetic fluid around the pudic nerve (N. pudendus), injecting it in different directions and at various depths, thus encircling the nerve and its branches near the ischiorectal fossa. The attempt to act directly on the nerve trunk in the sacrosciatic foramen he regards as dangerous on account of the liability of injury to the contiguous vessels. This perineural technic, he adds, is like using shot rather than a bullet; the result is less elegant, but it is more readily attained and surer. A single injection generally proved ample in his experience; only exceptionally was a second required. By the exclusion of the anesthetized pudic nerve it proved possible to analyze the elements of the labor pains; only the pain resulting from the stretching of the vulva and perineum was abolished by this means. The course of the nerve is palpated by the finger in the rectum or vagina as well as through the perineum. The spine of the ischium is the inner sidepost of the great sacrosciatic foramen through which the nerve emerges and is useful in locating the nerve; the injection is best made along the stretch of the nerve between the ischiorectal fossa and the lesser sacrosciatic foramen. The point of injection is readily marked with the thumb of the palpating hand, to the side of the anus, about the middle of the inward slope of the tuberosity of the ischium, while the middle finger in the vagina locates the spine and the index finger controls the progress of the needle. The control can also be made by a finger in the rectum. Sellheim combined this method of local perineural pudendal anesthesia with the scopolamin-morphin preliminary technic in some cases and found it quite satisfactory.

146. **Congenital Tuberculosis.**—Hamm insists that the discovery of tubercle bacilli in the placenta is no evidence that the fetus is infected with them, and that inoculation of animals in case of negative histologic and bacteriologic findings in the fetus is the only way to solve the problems involved.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 23, XXXI, No. 75, pp. 793-800

147 Appendicitis. (Note pratiche sull'appendicite.) B. Oreste.

Policlinico, Rome

July 3, XVII, No. 27, pp. 835-866

148 *Treatment of Cancer with Autolysate of Human Fetuses. (L'azione dei prodotti di autolisi fetali omogenei sui tumori maligni dell' uomo.) G. Fichera.

148. **Treatment of Cancer with Autolysates of Human Fetuses.**—As age seems to be such an important factor in the development of cancer, Fichera has been conducting research to determine whether fetal and embryonal tissue does not possess some property or contain some element which would have a curative action on cancer patients treated with it. He has applied this treatment in 36 cases of inoperable cancer and 18 have been given a systematic course; 8 of the patients did not seem to be benefited but in the 10 others a favorable influence seemed unmistakable. In 5 of the patients the malignant tumors seem to have entirely retrogressed or repeated microscopic examination of excised scraps has shown that the cancer tissue has been transformed into ordinary connective tissue. In these 5 cases the cancer was in the breast in 3 and in the lower rectum or thyroid in the others. The injections of embryonal tissue were made into the lesion or at a distance, the former method being most active in results. The change in size and consistence of the tumor does not always parallel the actual therapeutic results, which can be distinguished only with the microscope. He uses autolysates of human fetuses, the tissues mixed with about 20 parts physiologic salt solution, with a little thymol or phenol, with a layer of oil or toluol on top, and kept at a constant temperature of 37 C. (99 F.) for about two months, when it is ready for use after its sterility has been tested and found complete. The autolysate forms a homogeneous suspension by this time, and he injects 2 or 3 c.c. from two to four times a week, continuing for months according to indications. Continuing treatment for a time after complete cure of the cancer there was no tendency to recurrence in his clinical and experimental experience, and he is confident that when this method of treatment can be applied to less desperate cases than those in which he tried it, the results will be proportionately better. The work issues from the university surgical institute at Rome in charge of Durante.

Hospitalstidende, Copenhagen

May 25, LIII, No. 21, pp. 569-600

149 *A New Apparatus for Differential Pressure. (Teknisk Redegørelse for et nyt Apparat til Overtryksrespiration.) H. Møllgaard.

150 *Endogenous Gonorrheal Lesions in Cornea and Skin. (Om endogene gonorroiske Hornhinde- og Hudaffektioner.) C. F. Heerfordt. Commenced in No. 19.

June 1, No. 22, pp. 601-632

151 Case of Fatal Abdominal Actinomycosis. (Et Tilfælde af Underlivsaktinomykose.) E. Frölich.

June 8, No. 23, pp. 633-656

152 *Periodic Vomiting and Acetonuria in Children. (Om periodiske Opkastninger og Acetonudskillelse hos Børn.) C. E. Bloch.

153 Elective Staining of Living Tissue and Living Microbes under the Ultramicroscope. (Elektiv Farvning af det levende Væv og den levende Mikrob og Undersøgelse heraf ved Hjælp af Ultramikroskopet.) J. Feilberg.

June 22, No. 25, pp. 681-704

154 *Titration Tuberculin Test. (Undersøgelser over Tuberkulintiterens diagnostiske Betydning.) A. Erlandsen and O. V. C. E. Petersen. Commenced in No. 24.

149. **Differential Pressure Apparatus.**—Møllgaard regards emphysema as a compensatory process in certain cases and the experiences with the differential pressure procedures confirm, he asserts, the correctness of this view. The emphysema is the result of reflex action to relieve the circulation through the region, and in all operations on the thorax the production of a compensating emphysema should be promoted. Collapse of the lung compresses the capillaries while an increase in the size of the lung increases the diameter of the capillaries unless this increase is excessive, when it drags on the capillaries and narrows their lumen. These are the principles on which is based this new apparatus devised by Rovsing, which is here described and illustrated. It aims to keep the pressure in the lung constant, independent of the phases and volume of the respiration, this constant pressure never exceeding the normal capillary pressure, but is capable of adjustment to the individual case.

150. **Gonorrheal Eye and Skin Lesions.**—Heerfordt reports a number of cases of lesions in the subcutaneous tissue and cornea developing in persons with gonorrheal general infection. Subepidermoid vesicles frequently develop in the course of the superficial dermatitis, and the vesicles may be grouped to resemble herpes even without any preceding dermatitis. These gonorrheal skin affections frequently display a hemorrhagic tendency and the dermatitis is sometimes accompanied or introduced with rheumatoid pains, suggesting involvement of the peripheral nerves. Keratitis was observed in 8 of his 23 cases of gonorrheal epibulbar subconjunctivitis and also in a few other cases. The phlyctenular, herpetiform or parenchymatous keratitis, complicating the gonorrheal subconjunctivitis, is evidently of endogenous origin. He gives a plate of the ocular findings in 12 cases to illustrate the various types mentioned. The gonorrheal manifestations in the skin are also liable to assume this same phlyctenular or herpetiform character. In 537 cases of gonorrhea in women he found record of herpes outside the genital region in 7 and in 10 out of 1,773 men; the proportion is probably larger in reality as only the severer forms of herpes were recorded. He reviews the literature on the subject, adding that both the ocular and cutaneous manifestations are generally mild and comparatively transient.

152. **Periodical Vomiting and Acetonuria in Children.**—Bloch reports another case of this combination; his patient was a boy of about 3 much depressed by the periodical vomiting. The odor of acetone permeated the air of the room. He had seven attacks of the recurring vomiting, each accompanied by much acetonuria, during the two years afterward, but then he seemed to outgrow the tendency and is now an apparently healthy child. Adenoid vegetations were removed in the interim.

154. See abstract 62 in THE JOURNAL, July 30, 1910, page 442.

Hygiea, Stockholm

June, LXXII, No. 6, pp. 593-704

155 Historical Sketch of Early Medical Education in Sweden. (Några ord om den medicinska undervisningen vid universiteten i Uppsala och Lund under 16- och 1700-talet.) E. Welander.
156 *Further Experience with the Two-Route Method of Treating Tuberculosis and Lupus. (Ytterligare fall af tuberkulos och lupus i de öfre luftvägarna, behandlade med NaJ + O_3, samt redorgörelse för metodens tillämpning och praktiska användning.) S. A. Pfannenstill.
157 Idiosyncrasy to Milk in Children. (Till frågan om orsakerna till komjölkens mindervärdighet som uppfödningsmedel åt späda barn.) W. Wernstedt.
158 Atherosclerosis in Youth of 17 with Pulmonary Tuberculosis and Chronic Nephritis. M. Simon.
159 Case of Mesenteric Cyst. (Cystis chylosa mesenterii ileï.) K. Belfrage.
160 Case of Fatal Heat Stroke. (Om ett fall af s. k. värmeslag med dödlig utgång.) V. Asklin.

156. See abstract of previous communication in THE JOURNAL, July 16, 1910, page 264.

Nordiskt Medicinskt Arkiv, Stockholm

XLII, Internal Medicine, Nos. 3-4. Last indexed Feb. 19, p. 633

161 Case of Syndrome Probably Resulting from Lesion in the Petrous Portion of the Temporal Bone Extending from the Geniculum of the Facial Nerve into the Carotid Canal. (Syndrom von Spasmus, Parese und Neuralgia facialis, mit Hemiatrophia, okulären und anderartigen sympatischen Symptomen verbunden.) G. Söderbergh.
162 *Primary Liver Cancer. (Genese des Leberkrebses.) S. A. Pfannenstill and E. Sjövall.
163 Trigeminal Tumor with Cerebellopontine-Angle Symptoms. (Fall von Trigeminustumor mit Symptomen vom Kleinhirnbrückenwinkel, nebst einigen Bemerkungen über die sogenannte cerebellare Ataxie.) G. Söderbergh.
164 Experimental Adaptation of a Streptococcus Strain to the Subcutaneous Lymph Glands in Rabbits. G. Forssner.
165 Case of Internal Rupture of the Stomach. (Fall innerer Magenruptur.) J. Tillgren.

XLII, Surgical Section, No. 3. Last indexed April 2, p. 1179

166 *Fulguration in 32 Cases of Cancer. (Ueber die im Seraphimerlazarett bisher gewonnenen klinischen Erfahrungen in Bezug auf die Keating-Hart'sche Behandlung maligner Tumoren oder die sog. Fulguration.) J. Berg.
167 *Tuberculosis of the Neck of the Femur in Children and Its Relation to Coxitis. (Die Tuberkulose des Collum femoris im Kindesalter und ihre Beziehungen zur Hüftgelenkentzündung.) H. Waldenström.

162. **Liver Cancer.**—In the first case described a factory girl of 16 presented the typical syndrome of Banti's disease including great enlargement of the spleen, anemia, cirrhosis of the liver, jaundice, ascites and hemorrhages. The disease commenced with a sudden onset with pains in the epigastrium. Autopsy three years later revealed an unsuspected primary cancer in the liver. In another case the primary cancer in the liver occurred in a girl of 14 with symptoms for only a few months. There was also in this case chronic hyperplasia of the spleen and general anemia with slight ascites, but no traces of cirrhosis in the liver. The third patient was a man of 49, and the liver cancer was accompanied by brownish discoloration of most of the viscera. The three cases described indicate that irritation of the parenchyma is an important factor in the origin of cancer as also of cirrhosis of the liver.

166. **Fulguration in Cancer.**—Berg found that an incomplete operation supplemented by fulguration by the Keating-Hart method was followed by local healing and general improvement in certain cases while in others it seemed to promote the malignant growth. He would restrict fulguration to cases in which the operation is necessarily incomplete, and then apply it only after energetic Roentgen or radium treatment. His conclusions are based on 32 cases, which are described in detail.

167. **Tuberculosis of the Neck of the Femur.**—Waldenström found a focus in the neck of the femur in 21 of his 80 cases of tuberculous hip joint disease, and advocates excision of the focus in the early cases. If the lesion is isolated the patient is sound again the moment the trochanter has healed. If there is concomitant synovitis, this is left to heal under conservative measures, which may require a long time but finally result in a well functioning hip joint. He gives an illustrated description of his technic for prophylactic extracapsular excision of the focus. The trochanter and a small piece of the shaft are sawed off and the flap turned back, permitting access to the focus in the neck. A disk of rubber tissue larger than the wound with a hollow metal cylinder fitted in the middle, made with a screw-thread outside, is then fitted into the focus in the bone and through this cylinder the focus is curetted and cleansed, the rubber pressed firm against the sawed surface of the bone, and thus preventing all contact with infectious matter. The focus is then filled with iodoformed glycerin, the trochanter replaced and sutured. The tuberculin test is very important for the early diagnosis of the lesion, and especially for differentiation between the synovial and bone forms of the affection. If the child ceases to limp after a week or two, although it is still up and about, the trouble is probably not tuberculous. If the limping continues for two or three weeks, a Roentgen-ray examination should be made. Limping, atrophy of the muscle and spontaneous intermittent pain in the upper, inner part of the knee or hip joint with a localized pain on deep pressure anywhere on the bone, speak strongly in favor of an isolated focus in the bone, but if there is pain on pressure anywhere over the capsule and interference with the movability of the hip joint, synovitis should be suspected. If there is only local pain at a certain point in the bone but not over the entire capsule and without impairment of the movements of the joint, synovitis can be excluded. In conclusion Waldenström mentions that he induced teachers of the public schools to watch for limping among the pupils and obtained records of 296 limping children among 20,000 school children. He was able to examine personally 258. A focus in the neck of the femur was found in only 2, tuberculous coxitis in 15, septic coxitis in 2, congenital dislocation of the hip joint in 13, spinal paralysis in 23 and Little's disease in 5. He ascribes the small number of cases of an isolated focus in the neck of the femur to the fact that the children were all older than the age at which this lesion generally develops, that is, under 5. The teachers, however, had their eyes opened to the importance of proper treatment of limping among their scholars, so that now they promptly send to the physician those that are found to be limping.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

A TEXT-BOOK ON THE THERAPEUTIC ACTION OF LIGHT. Including the Rho Rays, Solar and Violet Rays, Electric Arc Light, The Light Cabinet. By Corydon E. Rogers, M.D. Cloth. Price, $3.50. Pp. 323, with illustrations. New York: C. E. Rogers, 382 Second Avenue, (1910).

THE PRACTITIONER'S CASE-BOOK. For Recording and Preserving Clinical Histories. Prepared and Arranged by the Editorial Staff of the Interstate Medical Journal. Cloth. Price, $2. Pp. 286, with 80 Anatomic Charts. St. Louis: Interstate Medical Journal Co., 1910.

FOURTH ANNUAL REPORT OF THE AMERICAN ONCOLOGIC HOSPITAL FOR THE STUDY AND TREATMENT OF CANCER AND OTHER TUMORS. Forty-fifth and Chestnut Streets, Philadelphia, Pa. For the Year Ending Dec. 31, 1908. Paper. Pp. 45, with illustrations. 1909.

TWENTY-FIRST ANNUAL REPORT OF THE DIRECTOR OF THE PSYCHIATRIC INSTITUTE, 1908-1909. To the State Commission in Lunacy, State of New York [Adolf Meyer, Director, Pathological Institute, Ward's Island, New York]. Paper. Pp. 131. 1910.

TWENTY-FIFTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF THE STATE OF RHODE ISLAND. For the Year Ending Dec. 31, 1902. Including the Report on the Registration of Births, Marriages and Deaths in 1901. Cloth. Pp. 332. 1910.

LA GREFFE OVARIENNE: HISTORIQUE; RÉSULTATS CLINIQUES ET THÉRAPEUTIQUES. Par le Docteur Ivan Scheurer. Paper. Price, 4.50 francs. Pp. 182, with 9 illustrations. Paris: G. Steinheil, 2, rue Casimir-Delavigne, 1910.

DYSPEPSIA: ITS VARIETIES AND TREATMENT. By W. Soltau Fenwick, M.D., Doctor of Medicine of the University of Strassburg. Cloth. Price, $3 net. Pp. 485, with illustrations. Philadelphia: W. B. Saunders Co., 1910.

PRAKTISCHE WINKE FÜR DIE CHLORARME ERNÄHRUNG. Von Dr. H. Strauss, Dirigierender Arzt der inneren Abteilung des Jüdischen Krankenhauses in Berlin. Paper. Price, 1 mark. Pp. 47. Berlin: S. Karger, 1910.

REPORT OF THE SEVENTY-NINTH MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. Winnipeg, Aug. 25-Sept. 1, 1909. Cloth. Pp. 933. London: John Murray, Albemarle Street, 1910.

HANDBUCH DER BIOCHEMIE DES MENSCHEN UND DER TIERE. Von Dr. Carl Oppenheimer in Berlin. Installment 25. Paper. Price, 5 marks. Pp. 240. Jena: Gustav Fischer, 1910.

ANNUAL REPORT OF THE BROCKTON HOSPITAL COMPANY. For the Year 1909. Fourteenth Year. Paper. Pp. 69.